Design, Develop and Implement a menu driven Program in C for the following operations on Doubly Linked List (DLL) of Employee Data with the fields: *SSN, Name, Dept, Designation, Sal,PhNo.*

a. Create a DLL of N Employees Data by using *end insertion*.
b. Display the status of DLL and count the number of nodes in it
c. Perform Insertion and Deletion at End of DLL
d. Perform Insertion and Deletion at Front of DLL
e. Demonstrate how this DLL can be used as Double Ended Queue
f. Exit

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

///Doubly Linked List (DLL) of Employee Data with the fields: SSN, Name, Dept, Designation,Sal, PhNo


struct node
{
char ssn[10],name[10],dept[15],desig[15],phno[10];
float sal;
struct node *llink;
struct node *rlink;
};
typedef struct node *NODE;
NODE temp, FIRST=NULL,END=NULL;

/*********************************/
NODE getnode()
{
        NODE x;
        x=(NODE)malloc(sizeof(struct node));
        return x;
}

/*********************************/
void read()
{
        temp=getnode();
                temp->llink=NULL;
                temp->rlink=NULL;
          printf("Enter SSN");
          flushall();
          gets(temp->ssn);

                printf("Enter NAMe");
                flushall();
```

```
                gets(temp->name);

                printf("Enter dept:");
                flushall();
                gets(temp->dept);
                printf("Enter designation:");
                flushall();
                gets(temp->desig);

                printf("Enter phno");
                flushall();
                gets(temp->phno);

                printf("Enter salary");
                scanf("%f",&temp->sal);
}

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

 printf("enter the number of Employees \n");
 scanf("%d",&n);
 while(i!=n)
 {
                i++;
                printf("Enter the details of the %d employee\n", i);
                 read();

                 if(FIRST==NULL)

                {
                 FIRST=temp;
                 END=temp;
                }

                 else{
                 END->rlink=temp;
                 temp->llink=END;
                 END=temp;
                 }

 } //end of while
printf("Creation of DLL for %d is done",i);
}


/**Display the status and count the number****/
void display_count()
{
```

```
NODE temp1=FIRST;
int count=1;

printf("the employee details \n");

if(temp1==NULL)
{
        printf("the employee detail is NULL and count is %d\n",count-1);
}

else
{
        while(temp1!=END)
        {
         count++;
         printf("%s\t%s",temp1->ssn,temp1->name);
         temp1=temp1->rlink;
         }

         printf("%s\t%s",temp1->ssn,temp1->name);
         printf("the student count is %d\n",count);
}


return;
}
 /*******************Insertionfront();********/
void  Insertionfront()
{
                        printf("enetr the details of the employee\n");
 read();
                if(FIRST==NULL)
                FIRST=temp  ;

                else
                {
                temp->rlink=FIRST;
                FIRST->llink=temp;
                FIRST=temp;
                }
}

void Insertionend()
{
 temp=getnode();
 temp->llink=NULL;
 temp->rlink=NULL;
 printf("enter the deatils of the new employee\n");
 read();
        if(FIRST==NULL)
```

```
        {
                FIRST=temp;
                END=temp;
        }

        else
                {
                END->rlink=temp;
                  temp->llink=END;
                  END=temp;
                }
        return ;
}
/******/

 void Deletionfront()
  {
 NODE temp2 ;
 if(FIRST==NULL)
 {
 printf("List is empty\n");
 }
 elseif(FIRST==END)
   {
        temp2=FIRST;
printf("deleted element is %s\n", temp2->ssn);
FIRST=NULL;
END=NULL;

   }
else {
temp2=FIRST;
 printf("deleted element is %s\n", temp2->ssn);
 FIRST =FIRST->rlink;
 temp2->llink=NULL;
 free(temp2);
 }
return;
 }
  void Deletionend()
  {
         NODE temp2 = END;
         if(temp2==NULL)
         {
                printf("List is empty\n");
         }
        elseif(FIRST==END)
   {

        printf("deleted element is %s\n", temp2->ssn);
```

```
        FIRST=NULL;
        END=NULL;

    }
         else
         {
        printf("deleted element is %s\n", temp2->ssn);
        END=END->llink;
        END->rlink=NULL;
        free(temp2);

                }


               return ;
  }

void main()
{

        //NODE temp,first = NULL;
        int choice;
        clrscr();
        while(1)
        {
                printf("\n\n\n\t1.create DLL...\t2.Display SLL..\t3.Insertion at
front...\t4.Insertion at end...\t...5.deletion at front...\t6.deletion  at end....\t7.Demonstration of
stck and Queue...\t8.Exit...");
                printf("\n\n\n\tEnter Your Choice: ");
                scanf("%d",&choice);
                switch(choice)
                {
                        case 1: Create_DLL();break;
                        case 2:display_count();break;
                       case 3: Insertionfront(); break;
                       case 4: Insertionend(); break;
                       case 5:Deletionfront();break;
                       case 6:Deletionend();break;
                       //case 7:Demonstartion();break;
                        case 8:exit(0);
                        default: printf("\n\n\n\tEnter proper Choice....");
                }       }
}
```