```
#incl
ude
<stdi
o.h>
        #include <stdlib.h>
        #include <string.h>
        struct node
        {
        int sem;
        char name[50];
        char usn[50];
        struct node *next;
        };
        struct node *head= NULL;
        int c=0;
        void Insert()
        {
        struct node *newnode;
        struct node *temp;
        int s;
        char n[30],u[30];
        printf("Enter your name  : ");
        scanf("%s",n);
        printf("Enter your semester  : ");
        scanf("%d",&s);
        printf("Enter your usn  : ");
        scanf("%s",u);
        newnode=(struct node*)malloc(sizeof(struct node));
        newnode->sem =s;
        strcpy(newnode->name,n);
        strcpy(newnode->usn,u);
        if (head==NULL)
        {
        newnode->next=NULL;
        head=newnode;
        printf("first node of linked list created\n");
```

```
c++;
}
else
{
temp=head;
while(temp->next!=NULL)
{
temp=temp->next;
}
temp->next=newnode;
newnode->next=NULL;
c++;
printf("Node created\n");
}
}
void deletebeg()
{
struct node *ptr;
if(head == NULL)
{
printf("\nList is empty");
}
else
{
ptr = head;
head = ptr->next;
free(ptr);
printf("\n Node deleted from the begining ...");
}
}
void deletemid()
{
char key[20];
printf("enter the usn of student to be deleted\n");
scanf("%s",key);
struct node *temp = head, *prev;
```

```
if (temp != NULL && strcmp(temp->usn,key)==0)
{
head = temp->next;
free(temp);
return;
}
while (temp != NULL && strcmp(temp->usn,key)!=0)
{
prev = temp;
temp = temp->next;
}

if (temp == NULL)
{
printf("student not in the list\n");
return;
}
prev->next = temp->next;

free(temp);
}
void deleteend()
{

struct node *toDelLast, *preNode;
if(head == NULL)
{
printf(" There is no element in the list.");
}
else
{
toDelLast = head;
preNode = head;
while(toDelLast->next != NULL)
{
preNode = toDelLast;
```

```
toDelLast = toDelLast->next;
}
if(toDelLast == head)
{
head = NULL;
}
else
{
preNode->next = NULL;
}
free(toDelLast);
}
}

void display()
{
struct node *ptr;
ptr=head;
int i=1;

if(ptr==NULL)
{
printf("Linked list is empty!\n");
}
else
{
while(ptr!= NULL)
{
printf("----NODE %d----\n",i);
printf("Name: %s\n",ptr->name);
printf("USN: %s\n",ptr->usn);
printf("Sem: %d\n",ptr->sem);
printf("\n");
i++;
ptr=ptr->next;
}
```

```
}

}

int main()
{
int choice,pos;
do
{

printf("\n1. Insert node \n2. delete node in the beg of the list\n3. delete at the end of list\n4.delete a given node \n5. display list\n6.exit\n");
printf("\nEnter your choice : ");
scanf("%d",&choice);
switch(choice)
{
case 1:
Insert();
break;

case 2:
deletebeg();
break;

case 3:
deleteend();
break;

case 4:
deletemid();
break;

case 5:
```

```
        display();
        break;

        case 6:
        break;

        default:
        printf("Wrong choice!\n");
        break;
        }
        }while(choice!=6);
        return 0;
        }
```

```
1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 1
Enter your name  : aaa
Enter your semester  : 3
Enter your usn  : 12345
first node of linked list created

1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit
```

```
Enter your choice : 1
Enter your name  : ssss
Enter your semester  : 3
Enter your usn  : 23456
Node created

1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 1
Enter your name  : dddd
Enter your semester  : 3
Enter your usn  : 45678
Node created
```

```
1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 5
----NODE 1----
Name: aaa
USN: 12345
Sem: 3

----NODE 2----
Name: ssss
USN: 23456
Sem: 3

----NODE 3----
Name: dddd
USN: 45678
Sem: 3
```

```
1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 4
enter the usn of student to be deleted
23456

1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 5
```

```
Enter your choice : 5
----NODE 1----
Name: aaa
USN: 12345
Sem: 3

----NODE 2----
Name: dddd
USN: 45678
Sem: 3


1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 2

 Node deleted from the begining ...
```

```
1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 5
----NODE 1----
Name: dddd
USN: 45678
Sem: 3


1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 3
```

```
Enter your choice : 3

1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 5
Linked list is empty!

1. Insert node
2. delete node in the beg of the list
3. delete at the end of list
4.delete a given node
5. display list
6.exit

Enter your choice : 6


...Program finished with exit code 0
```