**PSG COLLEGE OF TECHNOLOGY, COIMBATORE-04**

**DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES**

**II Semester MSc Software Systems**

**18XW26 Data Structures Lab**

**Data Structures Lab –Linked List**

**Problem sheet - 7**

1. Write a menu driven program to perform the following operations on a singly linked list.
2. Insert a new node at beginning of the list
3. Insert a new node after the node which has the element ‘d’
4. Insert a new node at end to the list
5. Delete the first node of the list
6. Delete an existing node which is placed after the node which has the element ‘d’
7. Delete the last node of the list
8. Display the elements of the list
9. Write a menu driven program to perform the following operations on a doubly linked list.
10. Insert a new node at beginning of the list
11. Insert a new node after the node which has the element ‘d’
12. Insert a new node before the node which has the element ‘d’
13. Insert a new node at end to the list
14. Delete the first node of the list
15. Delete an existing node which is placed after the node which has the element ‘d’
16. Delete an existing node which is placed before the node which has the element ‘d’
17. Delete an existing node which has the element ‘d’
18. Delete the last node of the list
19. Display the elements of the list

/\* sample singly linked list code\*/

#include<stdio.h>

struct node

{

int data;

struct node \*next;

}\*Head=NULL;

/\* SLLinsertend() function inserts a new node at end of the singly linked list\*/

void SLLinsertend()

{

struct node \*new\_node,\*current;

new\_node=(struct node \*)malloc(sizeof(struct node));

printf("\nEnter the data : ");

scanf("%d",&new\_node->data);

new\_node->next=NULL;

if(Head==NULL)

{

Head=new\_node;

}

else

{

current=Head;

while(current->next!=NULL)

{

current=current->next;

}

current->next=new\_node;

}

}

/\* display() function prints the elements of the singly linked list\*/

void display()

{

struct node \*new\_node;

printf("\nThe Linked List : \n");

new\_node=Head;

while(new\_node!=NULL)

{

printf("%d--->",new\_node->data);

new\_node=new\_node->next;

}

printf("NULL");

}

void main()

{

SLLinsertend();

display();

SLLinsertend();

display();

SLLinsertend();

display();

}