**Day-3 Assignment-3**

**Question: 1**

Implement the following functions for a single linked list:  
1. Insert at end  
2. Delete from beginning  
3. Delete from end

**#include <iostream>**

**#include<stdlib.h>**

**using namespace std;**

**struct Node**

**{**

**int Data;**

**Node \*next;**

**};**

**Node \*Delete\_from\_end(Node \*head)**

**{**

**Node \*temp=head;**

**if(head==NULL)**

**{**

**cout<<"The list is already empty.";**

**return head;**

**}**

**if(head->next==NULL)**

**{**

**delete head;**

**return NULL;**

**}**

**while(temp->next->next!=NULL)**

**{**

**temp=temp->next;**

**}**

**temp->next=NULL;**

**return head;**

**}**

**Node \*Delete\_from\_beg(Node \*head)**

**{**

**Node \*newhead=NULL;**

**if(head==NULL)**

**{**

**cout<<"Nothing to Delete. The list is already empty.";**

**return head;**

**}**

**else**

**{**

**newhead=head->next;**

**delete(head);**

**}**

**return newhead;**

**}**

**void display(Node \*head)**

**{**

**Node \*temp=head;**

**int count=0;**

**if(temp==NULL)**

**{**

**cout<<"The list is empty.";**

**}**

**cout<<"The elements of the list are:"<<endl;**

**while(temp!=NULL)**

**{**

**cout<<temp->Data<< " "<<endl;**

**temp=temp->next;**

**count++;**

**}**

**cout<<"The Total Number of elements in the list is:"<< count<<endl;**

**}**

**Node \*create(int Data)**

**{**

**Node \*nptr=new(Node);**

**nptr->Data=Data;**

**nptr->next=NULL;**

**return nptr;**

**}**

**Node \*insert\_end(Node \*head, int x)**

**{**

**Node \*ptr=create(x);**

**Node \*temp=head;**

**if(head==NULL)**

**{**

**head=ptr;**

**return head;**

**}**

**while(temp->next!=NULL)**

**{**

**temp=temp->next;**

**}**

**temp->next=ptr;**

**return head;**

**}**

**Node \*insert\_beg(Node \*head, int x)**

**{**

**Node \*pt=create(x);**

**if(head==NULL)**

**{**

**head=pt;**

**return head;**

**}**

**pt->next=head;**

**head= pt;**

**return head;**

**}**

**int main()**

**{**

**Node \*head, \*temp;**

**head= NULL;**

**head=insert\_beg(head,10);**

**head=insert\_beg(head,20);**

**head=insert\_beg(head,30);**

**head=insert\_beg(head,40);**

**head=insert\_beg(head,50);**

**head=insert\_beg(head,60);**

**head=insert\_beg(head,70);**

**head=insert\_end(head,80);**

**head=insert\_end(head,90);**

**display(head);**

**cout<<"After deleting from beginning ";**

**head=Delete\_from\_beg(head);**

**display(head);**

**cout<<"After deleting from end ";**

**head=Delete\_from\_end(head);**

**display(head);**

**return 0;**

**}**

**OUTPUT:**

The elements of the list are:

70

60

50

40

30

20

10

80

90

The Total Number of elements in the list is:9

After deleting from beginning The elements of the list are:

60

50

40

30

20

10

80

90

The Total Number of elements in the list is:8

After deleting from end The elements of the list are:

60

50

40

30

20

10

80

The Total Number of elements in the list is:7The elements of the list are:

70

60

50

40

30

20

10

80

90

The Total Number of elements in the list is:9

After deleting from beginning The elements of the list are:

60

50

40

30

20

10

80

90

The Total Number of elements in the list is:8

After deleting from end The elements of the list are:

60

50

40

30

20

10

80

The Total Number of elements in the list is:7