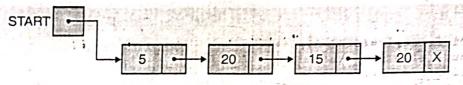
C++ Code - Linked List Implementation

```
#include <iostream.h>
 //Declare Node
struct Node ( .
     int num;
     Node *next;
 };
 //Declare starting (Head) node
 struct Node *head=NULL;
 //Insert node at start
 void insertNode(int n) {
     struct Node *newNode=new Node;
     newNode->num=n;
    newNode->next=head;
    head=newNode;
 //Traverse/ display all nodes (print items)
void display(){ .
    if(head==NULL) {
         cout<<"List is empty!"<<endl;
        return;
    struct Node *temp=head;
    while(temp!=NULL) {
        cout<<temp->num<<" ";
        temp=temp->next;
    cout << endl;
//delete node from start
void deleteItem() {
    if (head==NULL) {
        cout << "List is empty!" << endl;
        return;
    cout<<head->num<<" is removed."<<endl;</pre>
    head=head->next;
int main(){
    display();
    insertNode(10);
    insertNode(20);
    insertNode(30);
    insertNode(40);
    insertNode(50);
    display();
    deleteItem(); deleteItem(); deleteItem();
deleteItem();
    deleteItem();
    display();
```



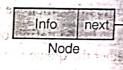
The left part of each node represents information and the other part represents a point containing the address of the next node in the list.

Each linked list contains a pointer variable start which contains the address of the first not in the list. The last node of the list contains the null value in the pointer field which represents of the linked list.

To implement a linked list which is a collection of nodes of same type, we use self reference structures which is a structure having a reference to itself. It can be defined as,

```
struct node woup alginis in as same (94 = sacriss (1-3512) = 1561)
              only in circulal choile
int info;
                The mountaine objects whether the mount of
node the slement at the first position by setting both in my treat about
                  and then we researe and insert element it first position
```

This declaration of structure node consists of two members, the first one is the information part and the other one is a self referential pointer member which points to the next node of the list. The above declaration of the structure node can be depicted as,



11.disp getch()

node* p

char ch

ptr=

cout

cin> ptr-

ptr-

star

cout

cout

roid linl

node *I

.while(I

linked 1

node *

cout <<

while (

cout ptr=

int x; while(c

Prog 18.4 Program to create and display a linked list using object and classes?

```
#include<comio.h>
             #include <iomanip.h>
            #include <iostream.h>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            利用红色发现
            struct node
                                                                                                          का वाद कृत्यकार राजाविद्याचा देवाताच्ये कार स्वति विद्याचित्र स्वति । विद्याचार व्याप्ति । विद्याचार विद्याचार
                           interinfore the state with the sunfeedinger of city were all jo was set
                         node* next; if we are a supplied to the state of the solor
                                entenant programme and the contract of the con
                           TANDALE TOTAL
                                                                                                                                                            the a into stack of an alcohole the productional initial fall with the fickale
                      node* start; The layer of proceedings to the control of the contro
           public:
                                                                                                                                                                                  and an all and a company of the comp
                          linked_list()
                                       { start=NULL; }}
                                  (void create(); because file a multiproperty sunch ( race bode ( )
                             woid display(); who provide the many through the many through the many and the many through the many through
                                        -linked_list();
                                                                                                                                                                                                        the both and street and a with the order of the configuration attention
int main()
                     clrscr();
                    linked_list_l1;//creating_an_object_representing_linked_list_____
                .11. create () ; the contract contract services, are an entire contract contract contract to iked list i
                cout << "linked list is " "how in both in A was a rion on the rion of the leasing m
```

Learn Programming in C++

nter info 1

```
11.display(); proved be built and person secundary proveduction is the
    getch(); return 0; he common the common transfer of the common trans
oid linked_list::create()
    node * Optr; north or and the able to Uo tell much van som associate Leiter Line 200
      char ch='y'; " the design of the state of th
     int x;
while(ch=='y')
                     ptr=new node; //creating a node dynamically
                         cin>x; a rel la lathyration to knot it. I.J.A de treixer de la contract de la con
                         ptr->info=x; //assign value x to info part of new node
                          ptr->next=start;
                                                                                                                                                                   Will state to the
                  start=ptr;
                          cout.flush();
                          cout<<"\nwant to input more: n to quit\n";
                       cin>>ch;
                          Did linked_list::display()
           node *ptr=start; //temporary pointer to first node
       -while(ptr. = NULL) of a factor shall be the the conduction is
                      cout<<ptr>
                ptr=ptr->next;
                                     n error man traile ill mulches motor this create har mission con an and include
             inked_list::-linked-list())
                To be a more principle to the contract of the 
               node *ptr=start;
                cout<<"destroying...linked list\n";
                 while (ptr!=NULL)
               ptr=ptr->next; //pointing to next node
                       delete start; // delete first node
                   start=ptr; //update start with address of second node
                                                            20 y กราชบางที่ วออสกราช ( โซเมียรไว้ กรรมจาก การเรียกการ ( ) ชุดใจตะบาง ยัก ( กรมอยประชา
              en asson part of every node by traversing the finked list : LOE = abon wan lo rate of infe
              to input new have created a pointer of type made white | (n/y) ? somutudini of
                                                                                                                                                                                                                                                                        renty de played, The statement.
              r info part of new node = 20.
              at to input more ? (y/n) = y
                                                                                                                                                                    taraterate.
              and prevention that node in the linked list. As the end of linked list n = (n/y)? snom tudni of
              er info part of new node = 10-1
             asing memory the internal memory about the plant memory and in the plant of the pla
                                                                                                                                                                                                                                                                                                                                     = 595
              Programming in C++
```