

# linked\_list\_recursive\_version.cpp

```
#include <iostream>
using namespace std;

class Node
{
public:
    Node()
    {
        info = -1;
        next = NULL;
    }

    Node(int f)
    {
        info = f;
        next = NULL;
    }

    int getInfo() { return info; }
    Node * getNext() { return next; }
    void setInfo(int f) { info = f; }
    void setNext(Node * n) { next = n; }
    void print() { cout << info << "->"; }

private:
    int info;
    Node * next;
};

class List
{
public:
    List() { first = NULL; }

    Node * getFirst()
    {
        return first;
    }
    //Check if this list is empty
    bool isEmpty()
    {
        return first == NULL;
    }

    //Print the info of all nodes in this list starting Node * p
    void print(Node * p)
    {
        //TO BE COMPLETED
    }
}
```

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```
        if (p)
        {
            print(p->getNext());
            p->print();
        }
    }

void deleteNode(Node *& nd, int s)
{
    if (s == nd->getInfo())
    {
        Node * p = nd;
        nd = nd->getNext();
        delete p;
    }
    else
    {
        Node * p = nd->getNext();
        deleteNode(p, s);
        nd->setNext(p);
    }
}

void insert(Node * & start, Node * nd)
{
    if (start == NULL)
    {
        start = nd;
    }
    else
    {
        Node * p = start->getNext();
        insert(p, nd);
        start->setNext(p);
    }
}
```

private:

```
    Node * first;    // The pointer to the first node in the list
};
```

int main()

```
{
    List lst;
    Node * startNode = lst.getFirst();

    //TO BE COMPLETED
```

```
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//Create 10 nodes and add them to the list lst using a loop

for (int i = 0; i < 10; i++)
{
    Node * nd = new Node(i+1);
    lst.insert(startNode, nd);
}
lst.print(startNode);
lst.deleteNode(startNode, 1);
lst.deleteNode(startNode, 10);
lst.deleteNode(startNode, 5);
lst.print(startNode);

return 0;
}
```