/\* Program to swap two adjacent nodes in a single linked list \*/

#include <iostream>

#include <stdio.h>

using namespace std;

struct node

{

int data;

struct node \*link;

};

struct node \*root=NULL;

int loc;

void append()

{

struct node \*temp;

temp=(struct node \*)malloc(sizeof(struct node));

cout<<"Enter node data"<<endl;

cin>>temp->data;

temp->link=NULL;

if(root==NULL)

root=temp;

else

{

struct node \*p;

p=root;

while(p->link!=NULL)

{

p=p->link;

}

p->link=temp;

}

}

void display()

{

struct node \*temp;

temp=root;

if(temp==NULL)

cout<<"List is empty"<<endl;

else

{

while(temp!=NULL)

{

cout<<temp->data<<"->";

temp=temp->link;

}

cout<<"NULL"<<endl;

}

}

void swap()

{

struct node \*p,\*r,\*q=NULL;

int i=1;

p=root;

while(i<loc-1)

{

p=p->link; //Pointer 1

i++;

}

q=p->link; //Pointer 2

r=q->link; //Pointer 3

q->link=r->link; //Connection 1

r->link=q; // Conection 2

p->link=r; // Connection 3

}

int main()

{

int n;

cout<<"Enter number of nodes"<<endl;

cin>>n;

for(int i=1;i<=n;i++)

append();

cout<<"Displaying nodes before swapping"<<endl;

display();

cout<<"Enter Location of node to be swapped"<<endl;

cin>>loc;

cout<<"Swapping nodes"<<endl;

swap();

cout<<"Displaying nodes after swapping"<<endl;

display();

exit(0);

}