

```
#include<stdio.h>

#include<stdlib.h>

#include<string.h>


typedef struct Node Node;

struct Node
{
    int data;

    struct Node* next;
};

void insertElements(Node** head, int num )
{
    Node *temp=(Node *)malloc(sizeof(Node *));

    temp->data=num;

    temp->next=NULL;

    if(*head==NULL)
    {
        *head=temp;
    }
    else
    {
        Node *currNode=*head;

        while(currNode->next!=NULL)
        {
            currNode=currNode->next;
        }

        currNode->next=temp;
    }
}

void display(Node *head)
```

```

{
    while(head!=NULL)
    {
        printf("%d ",head->data);
        head=head->next;
    }
    return;
}

void createLoop(Node **head,int index)
{
    Node *temp=*head;
    Node *backUP=NULL;
    int count=0;
    while(count<index)
    {
        temp=temp->next;
        count++;
    }
    backUP=temp;
    while(temp->next!=NULL)
    {
        temp=temp->next;
    }
    temp->next=backUP;
}

int detectLoop(Node *head,int flag)
{
    Node *slowPointer=head;
    Node *fastPointer=head;
    while(1)
    {

```

```

if(slowPointer==NULL || fastPointer==NULL || fastPointer->next==NULL)
{
    break;
}
slowPointer=slowPointer->next;
fastPointer=fastPointer->next->next;
if(slowPointer==fastPointer)
{
    slowPointer=head;
    while(slowPointer!=fastPointer)
    {
        slowPointer=slowPointer->next;
        fastPointer=fastPointer->next;
    }
    if(flag==1)
    {
        fastPointer->next=NULL;
        printf("Loop removed successfully");
        return 0;
    }
    return slowPointer->data;
}
}
return 0;
}

int count(Node * head)
{
    int count=0;
    while(head!=NULL)
    {
        head=head->next;
    }
}

```

```

        count++;
    }
    return count;
}

int main()
{
    struct Node* head=NULL;
    int N=0,num=0,loopPos=0;
    scanf("%d",&N);
    for(int index=1;index<=N;index++)
    {
        scanf("%d",&num);
        insertElements(&head,num);
    }
    printf("Elements in the linkedlist are: \n");
    display(head);
    printf("\n\n");
    printf("The count of nodes in the linked list are: %d\n",count(head));
    printf("\n");
    printf("Enter the element from where loop has to be created: ");
    scanf("%d",&loopPos);
    printf("%d\n\n",loopPos);
    createLoop(&head,loopPos);
    if(detectLoop(head,0)==0)
    printf("Loop not found");
    else
    printf("Loop found at Node which has the value of %d\n\n",detectLoop(head,0));
    int temp=detectLoop(head,1);
}

/*

```

sample input 1:

9

8 1 9 4 2 3 7 2 9

4

sample output 1:

Elements in the linkedlist are:

8 1 9 4 2 3 7 2 9

The count of nodes in the linked list are: 9

Enter the element from where loop has to be created: 4

Loop found at Node which has the value of 2

Loop removed successfully

*/