**EX:3 SINGLY LINKED LIST-MERGING OF TWO LIST**

**PROGRAM:**

#include<stdio.h>

#include<stdlib.h>

// Define a struct node

struct node

{

int data;

struct node \*next;

};

// Insert the list elements to a singly linked list

void insertLast(struct node \*\*h, int val)

{

struct node \* newnode;

newnode = malloc(sizeof(struct node));

newnode->data = val;

newnode->next = NULL;

struct node \* temp=\*h;

if(\*h==NULL)

{

\*h=newnode;

}

else

{

while(temp->next!=NULL)

{

temp =temp->next;

}

temp->next=newnode;;

}

}

// Merge the two list

void merge(struct node \*h1, struct node \* h2){

// Traverse the first node;

struct node \* temp=h1;

temp=h1;

while(temp->next!=NULL)

{

temp=temp->next;

}

// Insert the second list at the end of the first linked list

temp->next=h2;

}

// Display the linked list

void display(struct node \*h)

{

if(h==NULL)

{

printf("Sorry.... Empty List");

}

else

{

struct node \* temp=h;

while(temp!=NULL)

{

printf("%d ->",temp->data);

temp=temp->next;

}

printf("NULL");

}

}

// Main Function

int main()

{

struct node \*head1 = NULL;

struct node \*head2 = NULL;

int n1, n2, ip;

printf("\nName:R.Sridevi");

printf("\nRoll.No:20UIT021");

printf("\nProgram Name:Singly Linked List-Merging of two lists");

// Get the limit for the list 1

printf("\nEnter the limit for first list:");

scanf("%d",&n1);

// Generate the loop and get the input from the user. Call the create function by passing the &head1 and input

int i;

printf("\nEnter the inputs:");

for(i=0;i<n1;i++)

{

scanf("%d",&ip);

insertLast(&head1,ip);

}

// Call the display function to display the list

display(head1);

// Get the limit for the list 2

printf("\nEnter the limit for the second list:");

scanf("%d",&n2);

// Generate the loop and get the input from the user. Call the create function by passing the &head2 and input

printf("\nEnter the inputs:");

for(i=0;i<n2;i++)

{

scanf("%d",&ip);

insertLast(&head2,ip);

}

// Call the display function to display the list

display(head2);

// Call the merge function by passing the necessary parameters

merge(head1,head2);

// Call the display function to display the merged list

printf("\n After merging\n");

display(head1);

return 0;

}

**OUTPUT:**

Name:R.Sridevi

Roll.No:20UIT021

Program Name:Singly Linked List-Merging of two lists

Enter the limit for first list:5

Enter the inputs:10

20

30

40

50

10 ->20 ->30 ->40 ->50 ->NULL

Enter the limit for the second list:5

Enter the inputs:60

70

80

90

100

60 ->70 ->80 ->90 ->100 ->NULL

After merging

10 ->20 ->30 ->40 ->50 ->60 ->70 ->80 ->90 ->100 ->NULL