merge_two_linklist.c

/*Que : Write a program that merges two orderd linked list into third new list.When two lists are merged the data in the resulting list are also orderd.The two original lists should be left unchanged.That is merged list should be new one.Use linked implementation.*/

```
#include<stdio.h>
#include<stdlib.h>
#include<malloc.h>
#include"merge_two_linklist.h"

struct node *head1=NULL,*head2=NULL,*head3=NULL;

void merge(struct node *head1,struct node *head2,struct node *head3)
{
 struct node *t1=NULL,*t2=NULL,*t3=NULL;
 t1=head2;
 t2=head1;
 while(t1!=NULL && t2!=NULL)
  {
  nw=(struct node *)malloc(sizeof(struct node));
  nw->next=NULL;
  if(t1->data<t2->data)
    {
    nw->data=t1->data;
    t1=t1->next;
    }
  else
    {
    nw->data=t2->data;
    t2=t2->next;
      if(head3==NULL)
      head3=t3=nw;
      else
      {
      t3->next=nw;
      t3=nw;
      }
    }
 if(t1!=NULL)
 t3->next=t1;
 if(t2!=NULL)
 t3->next=t2;
 }

 ptr=head3;
do
{
printf("%d \t",ptr->data);
ptr=ptr->next;
}while(ptr!=NULL);
}
```

```
void main()
{
 struct node *create1();
 void display();
 void merge();
 printf("\n Enter elements of first list \n");
 head1=create1(head1);
 printf("\n The first link list is \n");
 display(head1);
 printf("\n Enter elements of second list \n");
 head2=create1(head2);
  printf("\n The merged list is\n");
  merge(head1,head2,head3);
}
/* Output->
Enter elements of first list

 How many values :- 4

 Enter actual values :-11 22 33 44

 The first link list is
11        22        33        44
 Enter elements of second list

 How many values :- 4

 Enter actual values :-55 66 77 88

 The merged list is
11        22        33        44        55        66        77        88
*/
```