#include<stdio.h>

#include<stdlib.h>

typedef struct node

{

int data;

struct node \*prev,\*next;

}node;

node \*createnode()

{

int i,n;

node \*p,\*head,\*t;

head=NULL;

printf("\nEnter the no of nodes::");

scanf("%d",&n);

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

{

p=(node\*)malloc(sizeof(node));

printf("\nEnter the data");

scanf("%d",&(p->data));

p->next=NULL;

p->prev=NULL;

if(head==NULL)

head=p;

else

{

t=head;

while(t->next!=NULL)

t=t->next;

t->next=p;

}

}

return head;

}

void print(node \*head)

{

node \*p;

p=head;

while(p!=NULL)

{

printf("%d=>",p->data);

p=p->next;

}

}

node \*sort(node \*head)

{

node \*p;

int i,j,temp,cnt=0;

p=head;

while(p!=NULL)

{

cnt++;

p=p->next;

}

for(i=1;i<cnt;i++)

{

p=head;

for(j=0;j<cnt-i;j++,p=p->next)

if(p->data>p->next->data)

{

temp=p->data;

p->data=p->next->data;

p->next->data=temp;

}

}

return head;

}

node \*merge(node \*head,node \*head1)

{

node \*p,\*head3;

if(head==NULL)

{

head3=head1;

head1=NULL;

return;

}

if(head1==NULL)

{

head3=head;

head=NULL;

return;

}

if(head->data<head1->data)

{

head3=p=head;

head=head->next;

}

else

{

head3=p=head1;

head1=head1->next;

}

while(head!=NULL&&head1!=NULL)

{

if(head->data<head1->data)

{

p->next=head;

head->prev=p;

head=head->next;

p=p->next;

}

else

{

p->next=head1;

head1->prev=p;

head1=head1->next;

p=p->next;

}

}

if(head!=NULL)

{

p->next=head;

head->prev=p;

}

if(head1!=NULL)

{

p->next=head1;

head1->prev=p;

}

head=head1=NULL;

return head3;

}

int main()

{

node \*head,\*head1,\*head2;

int ch=0;

head=head1=NULL;

printf("\nEnter first list::");

head=createnode();

printf("\nEnter second list::");

head1=createnode();

head=sort(head);

head1=sort(head1);

head2=merge(head,head1);

printf("\nMerged Linked List::");

print(head2);

return 0;

}

/\*

OUTPUT :

Enter first list::

Enter the no of nodes::3

Enter the data12

Enter the data34

Enter the data55

Enter second list::

Enter the no of nodes::4

Enter the data1

Enter the data33

Enter the data44

Enter the data55

Merged Linked List::1=>12=>33=>34=>44=>55=>55=>

\*/