#include<stdio.h>

#include<stdlib.h>

struct listNode {

int val;

struct listNode \*next;

}\*new, \*tail, \*temp;

struct listNode\* mergeTwoLists(struct listNode\* list1,struct listNode\* list2){

struct listNode \*temp,\*l;

if(list1==NULL || list2==NULL){

if(list1==NULL){

return(list2);

}else if(list2==NULL){

return(list1);

}

}

if(list1->val<list2->val){

l = list1;

list1 = list1->next;

}else{

l = list2;

list2 = list2->next;

}

temp = l;

while(list1!=NULL && list2!=NULL){

if(list1->val<list2->val){

temp->next = list1;

list1 = list1->next;

}else{

temp->next = list2;

list2 = list2->next;

}

temp = temp->next;

}

if(list1==NULL){

temp->next = list2;

}else if(list2==NULL){

temp->next = list1;

}

return(l);

}

struct listNode\* mergeKLists(struct listNode\*\* lists, int listsSize){

struct listNode \*head = tail,\*temp;

if(listsSize==0)

return(NULL);

else{

temp = lists[0];

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

temp = mergeTwoLists(temp,lists[i]);

return(temp);

}

}

struct listNode\* insert(){

struct listNode\* h = NULL;

struct listNode\* t = NULL;

int n, v, i;

printf("Enter no of values in list : ");

scanf("%d", &n);

printf("Enter values in sorted order\n");

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

new=(struct listNode\*)malloc(sizeof(struct listNode));

printf("Enter %d th value : ",i+1);

scanf("%d",&v);

new->val = v;

new->next=NULL;

if(i==0){

h=new;

t=new;

}

else{

t->next=new;

t=t->next;

}

}

return h;

}

int main(){

int listsSize;

printf("Enter no of lists : ");

scanf("%d",&listsSize);

struct listNode\* lists[listsSize];

for(int i=0; i<listsSize; i++){

printf("Enter %d list values\n",i+1);

lists[i]=insert();

}

struct listNode \*m = mergeKLists(lists, listsSize);

printf("Final sorted list is :\n");

while(m!=NULL){

printf("%d ", m->val);

m=m->next;

}

}

// lists = [[1,4,5],[1,3,4],[2,6]]