//**C PROGRAM TO CONCATINATE TWO LINKED LISTS**  
  
#include<stdio.h>  
# include<conio.h>  
# include <malloc.h>  
struct node  
{  
int data;  
struct node \*link;  
};  
void main()  
{  
int size1,size2,i, num;  
struct node \*ptr,\*ptr2,\*result,\*temp;  
struct node \* concat(struct node \*,struct node \*);  
void display(struct node \*);  
void add(struct node \*\*,int );  
clrscr();  
ptr=NULL;  
ptr2 =NULL;  
result=NULL;  
printf("enter the size of 1st list \n");  
scanf("%d",&size1);  
printf("enter the elements\n");  
for(i=1;i<=size1;i++)  
{  
scanf("%d",&num);  
add(&ptr,num);  
}  
printf("enter the size of 2st list \n");  
scanf("%d",&size2);  
printf("enter the elements\n");  
for(i=1;i<=size2;i++)  
{  
scanf("%d", &num);  
add(&ptr2, num);  
}  
result = concat(ptr,ptr2);  
printf("the elements in concat list\n");  
display(result);  
getch();  
}  
// add an node to the list  
void add(struct node \*\*q,int num)  
{  
struct node \*temp;  
temp = \*q;  
if(\*q==NULL)  
{  
\*q=malloc(sizeof(struct node));  
temp = \*q;  
}  
else  
{  
while((temp->link)!=NULL)  
{  
temp=temp->link;  
}  
temp->link = malloc(sizeof(struct node));  
temp=temp->link;  
}  
temp->data = num;  
temp->link = NULL;  
}  
// display the elements in the list  
void display(struct node \*pt)  
{  
while(pt!=NULL)  
{  
printf(" %d\n",pt->data);  
pt=pt->link;  
}  
}  
// concatenation of lists  
struct node \*concat(struct node \*p, struct node \*q)  
{  
struct node \*x,\*r;  
if(p==NULL)  
r=q;  
if(q==NULL)  
r=p;  
else  
{  
x=p;  
r=x;  
while(x->link!=NULL)  
x=x->link;  
x->link=q;  
}  
return(r);  
}