#include<stdio.h>

#define CMP(x,y)(((x)>(y))?1:((x)==(y))?0:-1)

typedef struct

{

int coef;

int expw;

}polynomial;

int avl=0;

polynomial terms[100];

void attach(int coefficient,int exponent)

{

if (avl>100)

{

printf("Cannot Add more terms");

}

else

{

terms[avl].coef=coefficient;

terms[avl++].expw=exponent;

}

}

void add(int starta,int startb,int finisha,int finishb)

{

int startc=avl,i,coeffi;

while ((starta<=finisha)&&(startb<=finishb))

{

switch(CMP(terms[starta].expw,terms[startb].expw))

{

case 1:

attach(terms[starta].coef,terms[starta].expw);

starta++;

break;

case 0:

coeffi=terms[starta].coef+terms[startb].coef;

if (coeffi)

{ attach(coeffi,terms[starta].expw);

starta++;

startb++;

}

break;

case -1:

attach(terms[startb].coef,terms[startb].expw);

startb++;

break;

}

}

for (;starta<=finisha;starta++)

{

attach(terms[starta].coef,terms[starta].expw);

}

for (;startb<=finishb;startb++)

{

attach(terms[startb].coef,terms[startb].expw);

}

int finishc=avl-1;

printf("The resultant polynomial:\n");

for(i=startc;i<=finishc;i++)

{

if (i!=finishc)

printf("%dx^%d\t+\t",terms[i].coef,terms[i].expw);

else

printf("%dx^%d\t",terms[i].coef,terms[i].expw);

}

}

void main()

{

int n,i,starta=0,finisha,finishb,startb;

printf("enter the number of terms in a:\n");

scanf("%d",&n);

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

{

int coeff,expo;

printf("enter the exponent and coefficient of %d term\n",i+1);

scanf("%d %d",&expo,&coeff);

attach(coeff,expo);

}

finisha=avl-1;

startb=avl;

printf("Enter the number of terms in b:\n");

scanf("%d",&n);

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

{

int coeff,expo;

printf("enter the exponent and coefficient of %d term\n",i+1);

scanf("%d %d",&expo,&coeff);

attach(coeff,expo);

}

finishb=avl-1;

printf("Polynomial A:\n");

for(i=starta;i<=finisha;i++)

{

if (i!=finisha)

printf("%dx^%d\t+\t",terms[i].coef,terms[i].expw);

else

printf("%dx^%d\t",terms[i].coef,terms[i].expw);

}

printf("\n");

printf("polynomial B:\n");

for(i=startb;i<=finishb;i++)

{

if (i!=finishb)

printf("%dx^%d\t+\t",terms[i].coef,terms[i].expw);

else

printf("%dx^%d\t",terms[i].coef,terms[i].expw);

}

printf("\n");

add(starta,startb,finisha,finishb);

}