#include<stdio.h>

#include<conio.h>

#include<math.h>

void main()

{

float static X[100],X\_Real[100],X\_Imag[100];

int k,n,N;

printf("\t\t\t Inverse Discrete Fourier Transform(IDFT)");

printf("\n\n Enter the length of DFT N=");

scanf("%d",&N);

printf("\n Enter the real and imaginary parts of X(k) as follows:\n\n"

"X(k) =Real{X(k)} Img{X(k)} \n" );

for(k=0;k<N;k++)

{

printf("X(%d)=",k);

scanf("%f%f",&X\_Real[k],&X\_Imag[k]);

}

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

{

X[n]=0;

for(k=0;k<N;k++)

{

X[n]=X[n]+X\_Real[k]\*cos((2\*M\_PI\*(float)k\*(float)n)/(float)N)-X\_Imag[k]\*sin((2\*M\_PI\*(float)k\*(float)n)/(float)N);

}

X[n]=X[n]/N;

}

printf("\n\n The sequence x(n) is as follows...");

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

{

printf("\n\n X(%d)=%3.6f",n,X[n]);

}

getch();

}