```
#include<conio.h>
#include<stdio.h>
#include<math.h>
void main()
{
 int n,i,j;
 double
xr[100],xi[100],XR[100],XI[100],AR[100],AI[100],BR[100],BI[100],CR[100],CI[100],D
R[100],DI[100],ER[100],EI[100],FR[100],FI[100],GR[100],GI[100],HR[100],HI[100],YR
[100],YI[100];
 clrscr();
 n=8;
 for(i=0;i<n;i++)
 {
  printf("Enter real part and imaginary part of x[ %d ]:",i);
  scanf("%lf",&xr[i]);
  scanf("%lf",&xi[i]);
 }

 for(i=0;i<=3;i++)
 {
        AR[i]=xr[i]+xr[i+4];
        AI[i]=xi[i]+xi[i+4];
        CR[i]=AR[i];
        CI[i]=AI[i];
        BR[i]=xr[i]-xr[i+4];
        BI[i]=xi[i]-xi[i+4];
 }

 DR[0]=BR[0];
 DI[0]=BI[0];
 DR[1]= 0.707*BR[1]+0.707*BI[1];
 DI[1]= 0.707*BI[1]-0.707*BR[1];
 DR[2]= BI[2];
 DI[2]=(-1)*BR[2];
 DR[3]=-0.707*BR[3]+0.707*BI[3];
 DI[3]=-0.707*BI[3]-0.707*BR[3];

 ER[0]=CR[0]+CR[2];
 EI[0]=CI[0]+CI[2];
 ER[1]=CR[1]+CR[3];
 EI[1]=CI[1]+CI[3];
 ER[2]=CR[0]-CR[2];
 EI[2]=CI[0]-CI[2];
 ER[3]=CR[1]-CR[3];
 EI[3]=CI[1]-CI[3];

 FR[0]=DR[0]+DR[2];
 FI[0]=DI[0]+DI[2];
 FR[1]=DR[1]+DR[3];
 FI[1]=DI[1]+DI[3];
 FR[2]=DR[0]-DR[2];
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```
 FI[2]=DI[0]-DI[2];
 FR[3]=DR[1]-DR[3];
 FI[3]=DI[1]-DI[3];

 for ( i = 0; i <= 2; i++)
 {
        GR[i]=ER[i];
        GI[i]=EI[i];
        HR[i]=FR[i];
        HI[i]=FI[i];
 }

 GR[3]=EI[3];
 GI[3]=-ER[3];
 HR[3]=FI[3];
 HI[3]=-FR[3];

 for ( i = 0; i <=2;i=i+2)
 {
        XR[i]=GR[i]+GR[i+1];
        XI[i]=GI[i]+GI[i+1];
        XR[i+4]=GR[i]-GR[i+1];
        XI[i+4]=GI[i]-GI[i+1];
        XR[i+1]=HR[i]+HR[i+1];
        XI[i+1]=HI[i]+HI[i+1];
        XR[i+5]=HR[i]-HR[i+1];
        XI[i+5]=HI[i]-HI[i+1];
 }
 printf("\n");
 for ( i = 0; i<n ; i++)
 {
 printf("Real:%lf Imaginary: %lf\n",XR[i],XI[i]);
 }
 getch();
}
/*      OUTPUT:
Enter real part and imaginary part of x[ 0 ]:0.5 0
Enter real part and imaginary part of x[ 1 ]:0.5 0
Enter real part and imaginary part of x[ 2 ]:0.5 0
Enter real part and imaginary part of x[ 3 ]:0.5 0
Enter real part and imaginary part of x[ 4 ]:0 0
Enter real part and imaginary part of x[ 5 ]:0 0
Enter real part and imaginary part of x[ 6 ]:0 0
Enter real part and imaginary part of x[ 7 ]:0 0
Real:2.000000 Imaginary: 0.000000
Real:0.500000 Imaginary: -1.207000
Real:0.000000 Imaginary: 0.000000
Real:0.500000 Imaginary: -0.207000
Real:0.000000 Imaginary: 0.000000
Real:0.500000 Imaginary: 0.207000
Real:0.000000 Imaginary: 0.000000
Real:0.500000 Imaginary: 1.207000*/
```