```
#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<=2;i=i+2)
 {
   AR[i]=xr[i]+xr[i+4];
   AI[i]=xi[i]+xi[i+4];
   AR[i+1]=xr[i]-xr[i+4];
   AI[i+1]=xi[i]-xi[i+4];
   BR[i]=xr[i+1]+xr[i+5];
   BI[i]=xi[i+1]+xi[i+5];
   BR[i+1]=xr[i+1]-xr[i+5];
   BI[i+1]=xi[i+1]-xi[i+5];
 }
 for(i=0;i<=2;i++)
 {
  CR[i]=AR[i];
  CI[i]=AI[i];
  DR[i]=BR[i];
  DI[i]=BI[i];
 }
 CI[3]=-AR[3];
 CR[3]=0;
 DI[3]=-BR[3];
 DR[3]=0;
 for(i=0;i<=1;i++)
 {
 ER[i]=CR[i]+CR[i+2];
 EI[i]=CI[i]+CI[i+2];
 ER[i+2]=CR[i]-CR[i+2];
 EI[i+2]=CI[i]-CI[i+2];
  FR[i]=DR[i]+DR[i+2];
 FI[i]=DI[i]+DI[i+2];
 FR[i+2]=DR[i]-DR[i+2];
 FI[i+2]=DI[i]-DI[i+2];
 }
 for(i=0;i<=3;i++)
```

```
 {
  GR[i]=ER[i];
  GI[i]=EI[i];
 }
 HR[0]=FR[0];
 HI[0]=FI[0];
 HR[1]=0.707*FR[1]+0.707*FI[1];
 HI[1]=0.707*FI[1]-0.707*FR[1];
 HR[2]=0;
 HI[2]=-FR[2];
 HR[3]=-0.707*FR[3]+0.707*FI[3];
 HI[3]=-0.707*FI[3]-0.707*FR[3];
 for(i=0;i<=3;i++)
 {
 XR[i]=GR[i]+HR[i];
 XI[i]=GI[i]+HI[i];
  YR[i]=GR[i]-HR[i];
 YI[i]=GI[i]-HI[i];
 }
  for(i=0;i<4;i++)
  {
printf("Real:%lf Imaginary:%lf\n",XR[i],XI[i]);
  }
  for(i=0;i<4;i++)
  {
printf("Real:%lf Imaginary:%lf\n",YR[i],YI[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 */
```