#include<iostream>  
#include<graphics.h>  
#include<math.h>  
using namespace std;  
int main()  
{  
 int gd=DETECT,gm,s;  
 initgraph(&gd,&gm,(char\*)"");  
 cout<<"1.Translation\n2.Rotation\n3.Scaling\n4.Reflection\n5.Shearing "<<endl;  
 cout<<"Selection:";  
 cin>>s;  
 switch(s)  
 {  
 case 1:  
 { int x1=200,y1=150,x2=300,y2=250;  
 int tx=50,ty=50;  
 cout<<"Rectangle before translation"<<endl;  
 setcolor(3);  
 rectangle(x1,y1,x2,y2);  
 setcolor(4);  
 cout<<"Rectangle after translation"<<endl;  
 rectangle(x1+tx,y1+ty,x2+tx,y2+ty);  
 getch();  
 break;  
 }  
 case 2:  
 { long x1=200,y1=200,x2=300,y2=300;  
 double a;  
 cout<<"Rectangle with rotation"<<endl;  
 setcolor(3);  
 rectangle(x1,y1,x2,y2);  
 cout<<"Angle of rotation:";  
 cin>>a;  
 a=(a\*3.14)/180;  
 long xr=x1+((x2-x1)\*cos(a)-(y2-y1)\*sin(a));  
 long yr=y1+((x2-x1)\*sin(a)+(y2-y1)\*cos(a));  
 setcolor(2);  
 rectangle(x1,y1,xr,yr);  
 getch();  
 break;}  
 case 3:  
 {  
 int x1=30,y1=30,x2=70,y2=70,y=2,x=2;  
 cout<<"Before scaling"<<endl;  
 setcolor(3);  
 rectangle(x1,y1,x2,y2);  
 cout<<"After scaling"<<endl;  
 setcolor(10);  
 rectangle(x1\*x,y1\*y,x2\*x,y2\*y);  
 getch();  
 break;}  
 case 4:  
 {  
 int x1=200,y1=300,x2=500,y2=300,x3=350,y3=400;  
 cout<<"triangle before reflection"<<endl;  
 setcolor(3);  
 line(x1,y1,x2,y2);  
 line(x1,y1,x3,y3);  
 line(x2,y2,x3,y3);cout<<"triangle after reflection"<<endl;  
 setcolor(5);  
 line(x1,-y1+500,x2,-y2+500);  
 line(x1,-y1+500,x3,-y3+500);  
 line(x2,-y2+500,x3,-y3+500);  
 getch();  
 break;}  
 case 5:  
 {  
 int x1=400,y1=100,x2=600,y2=100,x3=400,y3=200,x4=600,y4=200,shx=2;  
 cout<<"Before shearing of rectangle"<<endl;  
 setcolor(3);  
 line(x1,y1,x2,y2);  
 line(x1,y1,x3,y3);  
 line(x3,y3,x4,y4);  
 line(x2,y2,x4,y4);  
 cout<<"After shearing of rectangle"<<endl;  
 x1=x1+shx\*y1;  
 x2=x2+shx\*y2;  
 x3=x3+shx\*y3;  
 x4=x4+shx\*y4;  
 setcolor(13);  
 line(x1,y1,x2,y2);  
 line(x1,y1,x3,y3);  
 line(x3,y3,x4,y4);  
 line(x2,y2,x4,y4);getch();}default:  
 {  
 cout<<"Invalid Selection"<<endl;  
 break;  
 }  
 }closegraph();  
 return 0;  
}