

```

#include<bits/stdc++.h>
#include<graphics.h>
#include<conio.h>
#include<math.h>
#include<stdlib.h>
using namespace std;
int main()
{
    int tx,ty,c,t,i,j,k,sx,sy, x1,x2,y1,y2;
    float tx1;
    initwindow(500,400);

    int X,Y;
    X = getmaxx();
    Y = getmaxy();
    rectangle(0,0,X,Y);
    line(X/2,0,X/2,Y);
    line(0,Y/2,X,Y/2);

    //  x1=50;
    //  y1=100;
    //  x2=200;
    //  y2=250;
    x1 = y2 = 50;
    x2 = y1 = 100;
    rectangle(x1,y2,x2,y1);
    cout<<"1 :Translation of Rectangle \n2 :Rotation of Rectangle \n3 :Scal
    cout<<"\nEnter your Choice :";
    cin>>c;
    switch(c)
    {
        //Translation
        case 1:
            cout<<"Enter tx & ty :";
            cin>>tx>>ty;
            rectangle(x1+tx, y2+ty, x2+tx, y1+ty);
            break;
        //Rotation
        case 2 :
            int xx1, yy1, xx2, yy2, xx3, yy3, xx4, yy4;
            int ax1, ay1, ax2, ay2, ax3, ay3, ax4, ay4;
            int refx, refy;
            cout<<"Enter angle :";
            cin>>tx1;
            tx1=tx1*(3.14/180);
            refx = refy = 100;

```

```

xx1 = yy1 = yy2 = xx4 = 100;
xx2 = xx3 = yy3 = yy4 = 150;

ax1 = refy +(xx1-refx)* cos(tx1)-(yy1-refy)*sin(tx1);
ay1 = refy +(xx1-refx)* sin(tx1)+(yy1-refy)*cos(tx1);

ax2 = refy +(xx2-refx)* cos(tx1)-(yy2-refy)*sin(tx1);
ay2 = refy +(xx2-refx)* sin(tx1)+(yy2-refy)*cos(tx1);

ax3 = refy +(xx3-refx)* cos(tx1)-(yy3-refy)*sin(tx1);
ay3 = refy +(xx3-refx)* sin(tx1)+(yy3-refy)*cos(tx1);

ax4 = refy +(xx4-refx)* cos(tx1)-(yy4-refy)*sin(tx1);
ay4 = refy +(xx4-refx)* sin(tx1)+(yy4-refy)*cos(tx1);

line(ax1,ay1, ax2, ay2);
line(ax2,ay2, ax3, ay3);
line(ax3,ay3, ax4, ay4);
line(ax4,ay4, ax1, ay1);
break;
//Scaling
case 3 :
    cout<<"Enter sx & sy :";
    cin>>sx>>sy;
    rectangle(x1*sx, y2*sy, x2*sx, y1*sy);
    break;
//Shearing
case 4:
    float shx,shy;
    char ch;
    rectangle(x1,y1,x2,y2);
    delay(10);
    cout<<"enter the direction of shear : ";
    cin>>ch;
    if(ch=='x')
    {
        cout<<"enter x-direction of shear : ";
        cin>>shx;
        y1=y1+shx*x1;
        y2=y2+shx*x2;
        setcolor(RED);
        rectangle(x1,y1,x2,y2);
    }
    else
    {
        cout<<"enter y-direction of shear : ";

```

```
        cin>>shy;
        x1=x1+shy*y1;
        x2=x2+shy*y2;
        setcolor(RED);
        rectangle(x1,y1,x2,y2);
    }

    default :
        cout<<"Not a valid choice";
}
getch();
closegraph();

return 0;
}
```