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#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;
   }
```

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    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;
}
```