#include <iostream>

#include <GL/glut.h>

float ax = 10, ay = 10;

float P[66][3] = {

{205,204},{221,188},{226,170},{221,143},{208,132},{214,118},{252,117},{264,107},{253,98},{216,96},{206,88},{204,53},{192,26},{180,20},{188,48},{185,75},{155,57},{121,61},{84,81},{68,69},{53,76},{83,96},{70,110},{83,122},{57,140},{57,156},{94,135},{110,149},{141,165},{178,156},{200,145},{210,167},{206,203},{221,189},{212,167},{227,171},{211,166},{220,144},{201,145},{208,132},{177,131},{191,146},{203,133},{177,131},{206,86},{215,117},{244,97},{252,114},{253,98},{220,95},{206,85},{186,74},{204,53},{187,48},{193,25},{181,19},{188,47},{184,74},{176,129},{96,81},{93,135},{183,75},{142,164},{122,61},{110,148},{181,104}

};

float right[3][3]{ {1,0,0},{0,1,0},{ax,0,1} };

float left[3][3]{ {1,0,0},{0,1,0},{-ax,0,1} };

float up[3][3]{ {1,0,0},{0,1,0},{0,-ay,1} };

float down[3][3]{ {1,0,0},{0,1,0},{0,ay,1} };

float P1[66][3] = {

{205,204},{221,188},{226,170},{221,143},{208,132},{214,118},{252,117},{264,107},{253,98},{216,96},{206,88},{204,53},{192,26},{180,20},{188,48},{185,75},{155,57},{121,61},{84,81},{68,69},{53,76},{83,96},{70,110},{83,122},{57,140},{57,156},{94,135},{110,149},{141,165},{178,156},{200,145},{210,167},{206,203},{221,189},{212,167},{227,171},{211,166},{220,144},{201,145},{208,132},{177,131},{191,146},{203,133},{177,131},{206,86},{215,117},{244,97},{252,114},{253,98},{220,95},{206,85},{186,74},{204,53},{187,48},{193,25},{181,19},{188,47},{184,74},{176,129},{96,81},{93,135},{183,75},{142,164},{122,61},{110,148},{181,104}

};

void display() {

glClear(GL\_COLOR\_BUFFER\_BIT);

glFlush();

}

void start() {

glClearColor(0, 0, 0, 0);

gluOrtho2D(0, 800, 600, 0);

}

void Line(int x1, int y1, int x2, int y2) {

glBegin(GL\_LINES);

glClearColor(255, 255, 255, 0);

glVertex2f(x1, y1);

glVertex2f(x2, y2);

glLineWidth(2);

glEnd();

}

void Poligono() {

for (int i = 1; i < 66; i++) {

Line(P1[i - 1][0], P1[i - 1][1], P1[i][0], P1[i][1]);

}

glFlush();

}

void trans(float M[3][3]) {

glClear(GL\_COLOR\_BUFFER\_BIT);

for (int i = 0; i < 66; i++) {

P1[i][0] = (P1[i][0] \* M[0][0]) + (P1[i][1] \* M[1][0]) + (P1[i][2] \* M[2][0]);

P1[i][1] = (P1[i][0] \* M[0][1]) + (P1[i][1] \* M[1][1]) + (P1[i][2] \* M[2][1]);

P1[i][2] = 1;

}

Poligono();

}

void key(unsigned char button, int x1, int y1) {

switch (button) {

case 'p':

Poligono();

break;

case 'd':

trans(right);

glFlush();

break;

case 'a':

trans(left);

glFlush();

break;

case 'w':

trans(up);

glFlush();

break;

case 's':

trans(down);

glFlush();

break;

}

}

int main(int argc, char\* args[]) {

glutInit(&argc, args);

glutInitDisplayMode(GLUT\_RGB | GLUT\_SINGLE);

glutInitWindowPosition(650, 50);

glutInitWindowSize(800, 600);

glutCreateWindow("POLIGONO");

start();

glutDisplayFunc(display);

glutKeyboardFunc(key);

glutMainLoop();

return 0;

}