演習課題 07 (05月27日）レポート

交換留学(文学部)　ES19-0013 ジョユンサン  
課題 7

基本課題7

*// Created by Jho on 27/05/2019.*

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#include <stdlib.h>

#include <stdio.h>

#include <math.h>

#include "cglec.h"

#define WIDTH 300

#define HEIGHT 300

#define PI 3.14

**void** DrawLines(Image img, Point p[], **int** n, **int** g)

{

**int** i;

**if** (n <= 1 || n % 2 != 0) **return**; *//2*点以上の偶数でなければ描けない

**for** (i = 0; i < n; i += 2)

{

CglDrawLine(img, p[i].x, p[i].y, p[i + 1].x, p[i + 1].y, g);

}

}

*//*全点の座標を*M*倍に拡大する関数

**void** Kakudai(Point p[], **int** n, **double** M)

{

**int** i;

**for** (i = 0; i < n; i++)

{

p[i].x = (**int**)(p[i].x \* M + 0.5);

p[i].y = (**int**)(p[i].y \* M + 0.5);

}

}

*//*全点を*x*方向に*ax*，*y*方向に*ay*移動する関数

**void** Idou(Point p[], **int** n, **int** ax, **int** ay)

{

**int** i;

**for** (i = 0; i < n; i++)

{

p[i].x = p[i].x + ax;

p[i].y = p[i].y + ay;

}

}

**void** Kaiten(Point point[], **int** n, **double** q)

{

**double** radian = q \* PI/ 180;

**int** i,temp;

**for** (i = 0; i < n; i++) {

temp = point[i].x;

point[i].x = (**int**)(point[i].x \* cos(radian) - point[i].y \* sin(radian));

point[i].y = (**int**)(temp \* sin(radian) + point[i].y \* cos(radian));

}

}

**int** main(**void**)

{

**unsigned** **char** data[WIDTH][HEIGHT];

Image img = { (**unsigned** **char**\*)data, WIDTH, HEIGHT };

CglSetAll(img, 0);

Point moji\_k[] = { {0, 0}, {0, 40}, {20, 0},

{0, 20}, {0, 20}, {20, 30} };

**int** N = 6;

DrawLines(img, moji\_k, N, 255);

Kakudai(moji\_k, N, 4);

DrawLines(img, moji\_k, N, 255);

Kaiten(moji\_k, N, 30);

Idou(moji\_k, N, 150, 100);

DrawLines(img, moji\_k, N, 255);

CglSaveGrayBMP(img, "moji\_k.bmp");

}

