演習課題 10 (6月21日）レポート

交換留学(文学部)　ES19-0013 ジョユンサン  
課題 11

発展課題11

// Created by Jho on 06/21/2019. In "Xcode"

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// github

#include <GLUT/GLUT.h>

#include <OpenGL/OpenGL.h>

#include <OpenGL/glu.h>

#include <math.h>

#include <stdio.h>

#include <stdlib.h> // for exit(0)

double RotAngle = 0.0;

void KeyboardHandler(unsigned char key, int x, int y);

void OctPyramid(void); //既存の関数を利用

void IncAngle(void)

{

RotAngle = RotAngle + 0.9;

if (RotAngle > 360.0)RotAngle = RotAngle - 360.0;

glutPostRedisplay();

}

void display(void)

{

glClear(GL\_COLOR\_BUFFER\_BIT);

glColor3f(1.0, 1.0, 1.0);

glMatrixMode(GL\_MODELVIEW);

glLoadIdentity();

glTranslatef(0.0, 0.0, -6.0);

for(int i=0;i<4;i++)

{

glPushMatrix();

glRotatef(RotAngle + i \* 90, 0.0, 1.0, 0.0);

glTranslatef(+2.0, 0.0, 0.0);

for (int j = 0; j < 4; j++)

{

glPushMatrix();

glScalef(0.3, 0.3, 0.3);

glRotatef( RotAngle + j \* 90, 0.0, 1.0, 0.0);

glTranslatef(+2.0, 0.0, 0.0);

glRotatef(-90, 0.0, 0.0, 1.0);

OctPyramid();

glPopMatrix();

}

glPopMatrix();

}

glFlush();

}

int main(int argc, char\*\* argv)

{

glutInit(&argc, argv);

glutInitWindowPosition(0, 0);

glutInitWindowSize(400, 400);

glutInitDisplayMode(GLUT\_RGBA);

glutCreateWindow("ES19-0013 ジョユンサン");

glClearColor(0.0, 0.0, 0.0, 1.0);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

gluPerspective(45, 1.0, 0.0, 10.0);

gluLookAt(0, 2, 0, 0, 0, -5, 0, 1, 0);

glutDisplayFunc(display);

glutKeyboardFunc(KeyboardHandler);

glutIdleFunc(IncAngle);

glutMainLoop();

}

void KeyboardHandler(unsigned char key, int x, int y)

{

if (key == ' ')

exit(0);

}

void OctPyramid(void)

{

int N = 8;

double angle = 2 \* 3.1415 / N;

int i;

glBegin(GL\_LINE\_LOOP);

for (i = 0; i < N; i++)

glVertex3f(cos(i\*angle), -1.0, sin(i\*angle));

glEnd();

glBegin(GL\_LINES);

for (i = 0; i < N; i++)

{

glVertex3f(0.0, 1.0, 0.0);

glVertex3f(cos(i\*angle), -1.0, sin(i\*angle));

}

glEnd();

}



