#include "glos.h"

#include <gl.h>

#include <glu.h>

#include <glaux.h>

#include <math.h>

void myinit(void);

void CALLBACK display(void);

void CALLBACK myReshape(GLsizei w, GLsizei h);

void CALLBACK MutaStanga(void);

void CALLBACK MutaDreapta(void);

void CALLBACK MutaSus(void);

void CALLBACK MutaJos(void);

void CALLBACK rot\_z\_up(AUX\_EVENTREC\* event);

void CALLBACK rot\_z\_down(AUX\_EVENTREC\* event);

static GLfloat x = 0, y = 0, alfa = 0, z = 0;

GLUquadricObj\* qobj;

void myinit(void) {

glClearColor(1.0, 1.0, 1.0, 1.0);

}

void CALLBACK MutaStanga(void)

{

x = x - 10;

}

void CALLBACK MutaDreapta(void)

{

x = x + 10;

}

void CALLBACK MutaSus(void)

{

y = y + 10;

}

void CALLBACK MutaJos(void)

{

y = y - 10;

}

void CALLBACK rot\_z\_up(AUX\_EVENTREC\* event)

{

alfa = alfa + 10;

}

void CALLBACK rot\_z\_down(AUX\_EVENTREC\* event)

{

alfa = alfa - 10;

}

void CALLBACK display(void)

{

glClear(GL\_COLOR\_BUFFER\_BIT);

glLoadIdentity();

qobj = gluNewQuadric();

//axa oy

glBegin(GL\_LINES);

glColor3f(0, 0, 0);

glVertex3f(x, y, z);

glVertex3f(x, y + 150, z);

glEnd();

//axa ox

glBegin(GL\_LINES);

glColor3f(1, 0.5, 0);

glVertex3f(x, y, z);

glVertex3f(x + 150, y, z);

glEnd();

//axa oz

glBegin(GL\_LINES);

glColor3f(0.5, 1, 0);

glVertex3f(x, y, z);

glVertex3f(x, y, z + 150);

glEnd();

// 5 sfere si un cilindru

glRotatef(alfa, 0, 1, 0);

//sfera mare mijloc

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x, y, z);

glColor3f(0, 0, 0);

gluSphere(qobj, 25, 30, 30);

glPopMatrix();

//sfera sus galben

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x, y + 60, z);

glColor3f(1, 1, 0);

gluSphere(qobj, 20, 30, 30);

glPopMatrix();

//sfera albastru inchis

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x + 40, y - 35, z + 35);

glColor3f(0, 0, 1);

gluSphere(qobj, 20, 30, 30);

glPopMatrix();

//sfera jos albatru deschis

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x - 40, y - 35, z + 35);

glColor3f(0, 1, 1);

gluSphere(qobj, 20, 30, 30);

glPopMatrix();

//sfera roz

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x, y - 35, z - 35);

glColor3f(1, 0, 1);

gluSphere(qobj, 20, 30, 30);

glPopMatrix();

//cilindru sus

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x, y + 40, z);

glRotated(90, 1, 0, 0);

glColor3f(0.0, 0.5, 1.0);

gluCylinder(qobj, 5, 5, 15, 50, 10);

glPopMatrix();

//cilindru spre roz

glPushMatrix();

gluQuadricDrawStyle(qobj, GLU\_LINE);

glTranslatef(x, y - 25, z - 25);

glRotated(-45, 1, 0, 0);

glColor3f(0.0, 0.5, 1.0);

gluCylinder(qobj, 5, 5, 15, 50, 10);

glPopMatrix();

//initiala

auxSwapBuffers();

}

/\*void CALLBACK myReshape(GLsizei w, GLsizei h)

{

if (!h) return; //transformare anizotropica, forma se modifica functie de forma(dimens) viewportului

glViewport(0, 0, w, h); //daca w>h stabilim ca baza inaltime, si stab unit logica de dimens in fct de h(h/320, 320 lungime lat patrat)

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

glOrtho (-160.0, 160.0, -160.0,

160.0, -10.0, 10.0);

glMatrixMode(GL\_MODELVIEW);

}\*/

void CALLBACK myReshape(GLsizei w, GLsizei h)

{

if (!h) return;

glViewport(0, 0, w, h);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

if (w <= h)

glOrtho(-160.0, 160.0, 160.0 \* (GLfloat)h / (GLfloat)w,

-160.0 \* (GLfloat)h / (GLfloat)w, -100.0, 100.0);

else

glOrtho(-160.0 \* (GLfloat)w / (GLfloat)h,

160.0 \* (GLfloat)w / (GLfloat)h, -160.0, 160.0, -100.0, 100.0);

glMatrixMode(GL\_MODELVIEW);

}

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

{

auxInitDisplayMode(AUX\_DOUBLE | AUX\_RGB);

auxInitPosition(0, 0, 1000, 800);

auxInitWindow("Molecula de metan");

myinit();

auxKeyFunc(AUX\_LEFT, MutaStanga);

auxKeyFunc(AUX\_RIGHT, MutaDreapta);

auxKeyFunc(AUX\_UP, MutaSus);

auxKeyFunc(AUX\_DOWN, MutaJos);

auxMouseFunc(AUX\_LEFTBUTTON, AUX\_MOUSEDOWN, rot\_z\_up);

auxMouseFunc(AUX\_RIGHTBUTTON, AUX\_MOUSEDOWN, rot\_z\_down);

auxReshapeFunc(myReshape);

auxMainLoop(display);

return(0);

}