#include<stdio.h>

#include<stdlib.h>

#include<GL/glut.h>

#include<math.h>

static int m = 0, M = 0, v = 0, V = 0, E = 0, e = 0, r = 0, R = 0, j = 0, J = 0, s = 0, S = 0, U = 0, u = 0, n = 0, N =

0, X = 0, z = 0, B = 0, b = 0, c = 0;

static GLint axis = 2;

GLfloat diffuseMaterial[4] = { 0.5,0.5,0.5,1.0 };

/\*initialize material property,light soure,lighting model,and depth buffer\*/

void myinit(void)

{

glClearColor(0.0, 0.0, 0.0, 0.0);

glShadeModel(GL\_SMOOTH);

glEnable(GL\_DEPTH\_TEST);

GLfloat mat\_specular[] = { 1.0,1.0,1.0,1.0 };

GLfloat light\_position[] = { 1.0,1.0,1.0,0.0 };

glMaterialfv(GL\_FRONT, GL\_DIFFUSE, diffuseMaterial);

glMaterialfv(GL\_FRONT, GL\_SPECULAR, mat\_specular);

glMaterialf(GL\_FRONT, GL\_SHININESS, 25.0);

glEnable(GL\_LIGHTING);

glEnable(GL\_LIGHT0);

glLightfv(GL\_LIGHT0, GL\_POSITION, light\_position);

glColorMaterial(GL\_FRONT, GL\_DIFFUSE);

glEnable(GL\_COLOR\_MATERIAL);

}

void display(void)

{

GLfloat position[] = { 0.0,0.0,1.5,1.0 };

glClear(GL\_COLOR\_BUFFER\_BIT | GL\_DEPTH\_BUFFER\_BIT);

glColor3f(1.0, 0.5, 0.0);

glPushMatrix();

glRotatef((GLfloat)z, 1.0, 1.0, 1.0);

glLightfv(GL\_LIGHT0, GL\_POSITION, position);

glDisable(GL\_LIGHTING);

glutSolidSphere(0.8, 40, 16); /\*draw sun\*/

glPopMatrix();

glPushMatrix();

glLightfv(GL\_LIGHT0, GL\_POSITION, position);

glDisable(GL\_LIGHTING);

glEnable(GL\_LIGHTING);

glColor3f(1.5, 0.5, 0.0);

glutSolidTorus(0.2, 0.9, 6, 20);

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)M, 0.0, 1.0, 0.0);

glTranslatef(1.5, 0.0, 0.0);

glRotatef((GLfloat)m, 0.0, 1.0, 0.0);

glColor3f(1.0, 0.0, 0.0);

glutSolidSphere(0.2, 20, 8); /\*draw smaller planet mercury\*/

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)V, 0.0, 1.0, 0.0);

glTranslatef(2.0, 0.0, 1.0);

glRotatef((GLfloat)v, 0.0, 1.0, 0.0);

glColor3f(7.5, 9.5, 1.0);

glutSolidSphere(0.2, 20, 8); /\*draw smaller plant venus\*/

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)E, 0.0, 1.0, 0.0);

glTranslatef(3.5, 0.0, 0.0);

glRotatef((GLfloat)e, 0.0, 1.0, 0.0);

glColor3f(0.1, 6.5, 2.0);

glutSolidSphere(0.2, 20, 8); /\*draw smaller plant earth\*/

glRotatef((GLfloat)X, 0.0, 1.0, 0.0);

glTranslatef(0.3, 0.2, 0.0);

glColor3f(4.3, 3.5, 8.0);

glutSolidSphere(0.1, 20, 14); /\*draw moon\*/

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)R, 0.0, 1.0, 0.0);

glTranslatef(5.0, 0.0, 3.0);

glRotatef((GLfloat)r, 0.0, 1.0, 0.0);

glColor3f(1.0, 0.2, 0.0);

glutSolidSphere(0.2, 20, 8); /\*draw smaller planet mars\*/

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)J, 0.0, 1.0, 0.0);

glTranslatef(-2.5, 0.0, 1.0);

glRotatef((GLfloat)j, 0.0, 1.0, 0.0);

glColor3f(0.9, 0.7, 0.3);

glutSolidSphere(0.2, 20, 8);/\*draw smaller planet Jupiter\*/

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)S, 0.0, 1.0, 0.0);

glTranslatef(-5.0, 0.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)s, 0.0, 0.0, 5.0);

glColor3f(4.5, 0.5, 0.0);

glutSolidSphere(0.5, 20, 16); /\*draw smaller plant Saturn\*/

int i = 0;

glBegin(GL\_QUAD\_STRIP);

for (i = 0; i <= 360; i++)

{

glVertex3f(sin(i \* 3.1416 / 180) \* 0.5, cos(i \* 3.1416 / 180) \* 0.5, 0);

glVertex3f(sin(i \* 3.1416 / 180) \* 0.7, cos(i \* 3.1416 / 180) \* 0.7, 0);

}

glEnd();

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)U, 0.0, 1.0, 0.0);

glTranslatef(-6.5, 0.0, 0.0);

gluLookAt(10.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 10.0, 1.0);

glRotatef((GLfloat)u, 0.0, 0.0, 5.0);

glColor3f(1.2, 0.6, 0.2);

glutSolidSphere(0.5, 20, 16); /\* draw smaller planet Uranus\*/

glBegin(GL\_QUAD\_STRIP);

for (i = 0; i <= 360; i++)

{

glVertex3f(sin(i \* 3.1416 / 180) \* 0.5, cos(i \* 3.1416 / 180) \* 0.5, 0);

glVertex3f(sin(i \* 3.1416 / 180) \* 0.7, cos(i \* 3.1416 / 180) \* 0.7, 0);

}

glEnd();

glPopMatrix();

glPushMatrix();

glRotatef((GLfloat)N, 0.0, 1.0, 0.0);

glTranslatef(-8.0, 0.0, 0.0);

glRotatef((GLfloat)n, 0.0, 1.0, 0.0);

glColor3f(1.0, 2.0, 0.0);

glutSolidSphere(0.4, 20, 8);

glPopMatrix();/\* draw smaller planet Neptune \*/

glPushMatrix();

glRotatef((GLfloat)c, 6.0, -14.0, -6.0);

glTranslatef(5.0, 3.0, -1.0);

glScalef(0.60, 0.0, 2.5);

glColor3f(7.5, 9.5, 2.0);

glutSolidSphere(0.2, 12, 6);

glPopMatrix();/\*draw comet\*/

//to put the stars as a background

glPushMatrix();

glTranslatef(0.0, -2.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 2.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, -6.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 6.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, -8.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 8.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(8.0, 0.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-8.0, -2.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(6.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-6.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(5.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-7.0, 3.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-7.0, 2.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(7.0, -2.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(7.0, -3.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-7.0, -3.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(7.0, 2.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(1.0, -7.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(2.0, -5.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 3.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(5.0, -1.0, 0.0);

gluLookAt(0.0, 10.0, 0.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-6.0, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-0.5, 3.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-1.5, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-9.0, 3.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(9.0, -5.9, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(6.5, 8.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(5.0, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-9.0, 6.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.1, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-10.5, 9.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-11.0, -7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.07, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-11.0, 5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-7.0, -5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-10.0, 3.7, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-7.0, -2.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-8.0, 5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.03, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-8.0, -5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-11.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(6.0, -5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-6.9, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(5.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(6.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(3.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(4.0, -7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-4.0, -3.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(4.0, -7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(11.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(9.0, -9.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(8.0, -4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(9.0, 5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(7.0, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.9, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(1.0, 6.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.8, -5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(3.0, -7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(1.0, 5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(2.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-9.0, 0.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-10.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(9.0, 3.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-10.0, -6.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(10.0, 0.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-9.0, -7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-3.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-9.9, -7.5, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(1.0, 5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(3.0, 6.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-2.0, -5.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-3.0, -2.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-4.0, -8.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(8.3, -7.1, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-10.0, 7.6, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-3.0, 7.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-1.4, 7.5, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(3.0, 6.5, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-6.0, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(-6.0, -6.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.05, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.7, 4.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(2.0, 2.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 0.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, -1.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 1.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(0.0, 2.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 0.0, 0.0, 0.0);

glScalef(200.0, 0.0, 0.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glPushMatrix();

glTranslatef(8.7, 9.0, 0.0);

gluLookAt(0.0, 10.0, 2.0, 1.0, 0.0, 0.0, 0.0, 0.0, 1.0);

glRotatef((GLfloat)b, 1.0, 7.0, 5.0);

glColor3f(4.3, 3.5, 1.0);

glutSolidSphere(0.04, 20, 8);

glPopMatrix();

glutSwapBuffers();

}

void reshape(int w, int h)

{

glViewport(0, 0, (GLsizei)w, (GLsizei)h);

glMatrixMode(GL\_PROJECTION);

glLoadIdentity();

gluPerspective(60.0, (GLfloat)w / (GLfloat)h, 1.0, 20.0);

glMatrixMode(GL\_MODELVIEW);

glLoadIdentity();

gluLookAt(0.0, 0.0, 5.0, 0.0, 0.0, 0.0, 0.0, 1.0, 0.0);

}

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

{

switch (key)

{

case 'z':z = (z + 50) % 360;

glutPostRedisplay();

break;

case 'm':m = (m + 3) % 360;

glutPostRedisplay();

break;

case 'M':M = (M + 12) % 360;

glutPostRedisplay();

break;

case 'v':v = (v + 2) % 360;

glutPostRedisplay();

break;

case 'V':V = (V + 10) % 360;

glutPostRedisplay();

break;

case 'e':e = (e + 5) % 360;

glutPostRedisplay();

break;

case 'E':E = (E + 8) % 360;

glutPostRedisplay();

break;

case 'r':r = (r + 6) % 360;

glutPostRedisplay();

break;

case 'R':R = (R + 6) % 360;

glutPostRedisplay();

break;

case 'j':j = (j + 10) % 360;

glutPostRedisplay();

break;

case 'J':J = (J + 4) % 360;

glutPostRedisplay();

break;

case 's':s = (s + 9) % 360;

glutPostRedisplay();

break;

case 'S':S = (S + 3) % 360;

glutPostRedisplay();

break;

case 'u':u = (u + 8) % 360;

glutPostRedisplay();

break;

case 'U':U = (U + 2) % 360;

glutPostRedisplay();

break;

case 'n':n = (n + 7) % 360;

glutPostRedisplay();

break;

case 'N':N = (N + 1) % 360;

glutPostRedisplay();

break;

case 'b':b = (b + 10) % 360;

glutPostRedisplay();

break;

case 'c':c = (c + 1) % 360;

b = (b + 10) % 360;

glutPostRedisplay();

break;

case 'X':X = (X + 5) % 360;

glutPostRedisplay();

break;

case 'a':z = (z + 50) % 360;

b = (b + 10) % 360;

m = (m + 3) % 360;

v = (v + 2) % 360;

e = (e + 5) % 360;

r = (r + 6) % 360;

j = (j + 10) % 360;

s = (s + 9) % 360;

u = (u + 8) % 360;

n = (n + 7) % 360;

c = (c + 1) % 360;

glutPostRedisplay();

break;

case 'A':z = (z + 50) % 360;

b = (b + 10) % 360;

M = (M + 12) % 360;

V = (V + 10) % 360;

E = (E + 8) % 360;

R = (R + 6) % 360;

J = (J + 4) % 360;

S = (S + 3) % 360;

U = (U + 2) % 360;

N = (N + 1) % 360;

c = (c + 1) % 360;

glutPostRedisplay();

break;

case 'B':z = (z + 50) % 360;

b = (b + 10) % 360;

c = (c + 1) % 360;

m = (m + 3) % 360; M = (M + 12) % 360;

v = (v + 2) % 360; V = (V + 10) % 360;

e = (e + 5) % 360; E = (E + 8) % 360;

r = (r + 6) % 360; R = (R + 6) % 360;

j = (j + 10) % 360; J = (J + 4) % 360;

s = (s + 9) % 360; S = (S + 3) % 360;

u = (u + 8) % 360; U = (U + 2) % 360;

n = (n + 7) % 360; N = (N + 1) % 360;

glutPostRedisplay();

break;

case 27:exit(0);

break;

default:break;

}

}

void mouse(int btn, int state, int x, int y)

{

if (btn == GLUT\_LEFT\_BUTTON && state == GLUT\_DOWN)

{

z = (z + 50) % 360;

b = (b + 10) % 360;

c = (c + 1) % 360;

m = (m + 3) % 360; M = (M + 12) % 360;

v = (v + 2) % 360; V = (V + 10) % 360;

e = (e + 5) % 360; E = (E + 8) % 360;

r = (r + 6) % 360; R = (R + 6) % 360;

j = (j + 10) % 360; J = (J + 4) % 360;

s = (s + 9) % 360; S = (S + 3) % 360;

u = (u + 8) % 360; U = (U + 2) % 360;

n = (n + 7) % 360; N = (N + 1) % 360;

glutPostRedisplay();

}

if (btn == GLUT\_MIDDLE\_BUTTON && state == GLUT\_DOWN)

{

z = (z + 50) % 360;

b = (b + 10) % 360;

c = (c + 1) % 360;

m = (m + 3) % 360; M = (M + 12) % 360;

v = (v - 2) % 360; V = (V - 10) % 360;

e = (e + 5) % 360; E = (E + 8) % 360;

r = (r - 6) % 360; R = (R - 6) % 360;

j = (j + 10) % 360; J = (J + 4) % 360;

s = (s - 9) % 360; S = (S - 3) % 360;

u = (u + 8) % 360; U = (U + 2) % 360;

n = (n - 7) % 360; N = (N - 1) % 360;

glutPostRedisplay();

}

if (btn == GLUT\_RIGHT\_BUTTON && state == GLUT\_DOWN)

{

z = (z - 50) % 360;

b = (b - 10) % 360;

c = (c + 1) % 360;

m = (m - 3) % 360; M = (M - 12) % 360;

v = (v - 2) % 360; V = (V - 10) % 360;

e = (e - 5) % 360; E = (E - 8) % 360;

r = (r - 6) % 360; R = (R - 6) % 360;

j = (j - 10) % 360; J = (J - 4) % 360;

s = (s - 9) % 360; S = (S - 3) % 360;

u = (u - 8) % 360; U = (U - 2) % 360;

n = (n - 7) % 360; N = (N - 1) % 360;

glutPostRedisplay();

}

}

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

{

glutInit(&argc, argv);

glutInitDisplayMode(GLUT\_DOUBLE | GLUT\_RGB | GLUT\_DEPTH);

glutInitWindowSize(500, 500);

glutInitWindowPosition(100, 100);

glutCreateWindow("planets amidst stars");

myinit();

glutDisplayFunc(display);

glutReshapeFunc(reshape);

glutKeyboardFunc(keyboard);

glutMouseFunc(mouse);

glEnable(GL\_DEPTH\_TEST);

glutMainLoop();

return 0;

}