**Abdullah Al Taawab. ID-20341043 Sec - 13**

**Task02**

package demo;

import com.jogamp.opengl.GL2;

import com.jogamp.opengl.GLAutoDrawable;

import com.jogamp.opengl.GLCapabilities;

import com.jogamp.opengl.GLEventListener;

import com.jogamp.opengl.GLProfile;

import com.jogamp.opengl.awt.GLCanvas;

import com.jogamp.opengl.glu.GLU;

import java.lang.Math;

import javax.swing.JFrame;

class ThirdGLEventListener implements GLEventListener {

/\*\*

\* Interface to the GLU library.

\*/

private GLU glu;

/\*\*

\* Take care of initialization here.

\*/

public void init(GLAutoDrawable gld) {

GL2 gl = gld.getGL().getGL2();

glu = new GLU();

gl.glClearColor(0.0f, 0.0f, 0.0f, 1.0f);

gl.glViewport(-250, -150, 250, 150);

gl.glMatrixMode(GL2.GL\_PROJECTION);

gl.glLoadIdentity();

glu.gluOrtho2D(-200.0, 450.0, -200.0, 450.0);

}

/\*\*

\* Take care of drawing here.

\*/

public void display(GLAutoDrawable drawable) {

GL2 gl = drawable.getGL().getGL2();

gl.glClear(GL2.GL\_COLOR\_BUFFER\_BIT);

gl.glColor3d(0,1,0);

gl.glPointSize(4.0f);

gl.glBegin(GL2.GL\_TRIANGLES);

gl.glColor4d(2,0,2,2);

gl.glVertex2d(10.0, 300.0);

gl.glVertex2d(200.0, 300.0);

gl.glVertex2d(100.0, 400.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor3d(0,0,1);

gl.glVertex2d(10.0, 300.0);

gl.glVertex2d(10.0, 50.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(200.0, 300.0);

gl.glVertex2d(200.0, 50.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(10.0, 50.0);

gl.glVertex2d(200.0, 50.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor3d(0,1,0);

gl.glVertex2d(190.0, 290.0);

gl.glVertex2d(190.0, 230.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(190.0, 290.0);

gl.glVertex2d(130.0, 290.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor3d(1,0,0);

gl.glVertex2d(130.0, 290.0);

gl.glVertex2d(130.0, 230.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor3d(1,0,0);

gl.glVertex2d(130.0, 230.0);

gl.glVertex2d(190.0, 230.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(20.0, 290.0);

gl.glVertex2d(20.0, 230.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor3d(0,1,0);

gl.glVertex2d(20.0, 230.0);

gl.glVertex2d(80.0, 230.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(80.0, 230.0);

gl.glVertex2d(80.0, 290.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor3d(1,0,0);

gl.glVertex2d(20.0, 290.0);

gl.glVertex2d(80.0, 290.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glColor4d(1,1,0,1);

gl.glVertex2d(75.0, 50.0);

gl.glVertex2d(75.0, 150.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(140.0, 50.0);

gl.glVertex2d(140.0, 150.0);

gl.glEnd();

gl.glBegin(GL2.GL\_LINES);

gl.glVertex2d(140.0, 150.0);

gl.glVertex2d(75.0, 150.0);

gl.glEnd();

gl.glBegin(GL2.GL\_POINTS);

gl.glVertex2d(130.0, 100.0);

gl.glEnd();

}

private void dex( GL2 gl, int x, int y){

gl.glColor3d(1,0,0);

gl.glPointSize(10.0f);

gl.glBegin(GL2.GL\_POINTS);

gl.glVertex2d(x,y);

gl.glEnd();

}

public void reshape(GLAutoDrawable drawable, int x, int y, int width,

int height) {

}

public void displayChanged(GLAutoDrawable drawable,

boolean modeChanged, boolean deviceChanged) {

}

public void dispose(GLAutoDrawable arg0)

{

}

}

public class DEMO

{

public static void main(String args[])

{

//getting the capabilities object of GL2 profile

final GLProfile profile=GLProfile.get(GLProfile.GL2);

GLCapabilities capabilities=new GLCapabilities(profile);

// The canvas

final GLCanvas glcanvas=new GLCanvas(capabilities);

ThirdGLEventListener b=new ThirdGLEventListener();

glcanvas.addGLEventListener(b);

glcanvas.setSize(1000, 1000);

//creating frame

final JFrame frame=new JFrame("Basic frame");

//adding canvas to frame

frame.add(glcanvas);

frame.setSize(2000,2000);

frame.setVisible(true);

}

}