**UNIVERSITATEA TEHNICĂ A MOLDOVEI**

**FACULTATEA CALCULATOARE, INFORMATICĂ ȘI MICROELECTRONICĂ**

**CATEDRA CALCULATOARE**

**Raport**

**LUCRARE DE LABORATOR NR.5**

**la Tehnici avansate de programare**

**A realizat: Nicolenco Eugeniu gr. C-162**

**A verificat: Lector univ. Rotaru Lilia**

**Chișinău 2018**

**1. Tema lucrării:**

Cercetarea bibliotecii swing

**2.**  **Scopul lucrării:**

* Însuşirea modalităţilor de lucru cu grafica in Java;

**3. Etapele de realizare:**

* 1. Realizarea tipurilor grafice
  2. Realizarea animatiilor;
  3. Crearea functiilor proprii;
  4. Crearea interfeţii programului;
  5. Prezentarea lucrării.

*Varianta 8*

1. Să se reprezinte un dreptunghi, ce se roteste în planul ecramului în jurul unuia dintre virfuri.

***Program Listingul***

import java.awt.Color;

import java.awt.Dimension;

import java.awt.Graphics;

import java.awt.Graphics2D;

import java.awt.event.\*;

import java.util.Random;

import javax.swing.\*;

public class aux5 extends JFrame {

public aux5(){

initTools();

}

void initTools(){

this.setTitle("Lab 5");

class painting extends JPanel{

public int i=0;

public Color myColor=Color.LIGHT\_GRAY;

public int[] xSin = {120, 180, 180, 120};

public int[] ySin = {130, 130, 170, 170};

public int[] xb={0,300,300,0};

public int[] yb={0,0,300,300};

public int[] corner={xSin[0],ySin[0]};

public int cornerIndex=0;

public double speed = 0.65;

public int direction(boolean d){

if(d) i++;

else i--;

return i;

}

public boolean path = true;

public void paintComponent(Graphics g){

super.paintComponent(g);

Graphics2D g2d = (Graphics2D) g;

Graphics2D gg= (Graphics2D) g;

g2d.drawPolygon(xSin, ySin, xSin.length);

g2d.drawString("Action1 = Change corner", 50, 40);

g2d.drawString("Action2 = Change color", 50, 60);

g2d.rotate(Math.toRadians(direction(path)\*speed), corner[0], corner[1]);

g2d.drawPolygon(xSin, ySin, xSin.length);

g2d.setColor(myColor);

g2d.fillPolygon(xSin, ySin, xSin.length);

repaint();

}

}

setDefaultCloseOperation(WindowConstants.EXIT\_ON\_CLOSE);

painting panel = new painting();

panel.setPreferredSize(new Dimension(300,300));

JButton action1 = new JButton("Action1");

JButton action2 = new JButton("Action2");

JButton speedup = new JButton("Viteza+");

JButton speeddown = new JButton("Viteza-");

JButton switchDir = new JButton("Schimba directia");

action1.addMouseListener(new MouseAdapter() {

public void mouseClicked(MouseEvent evt) {

if(panel.cornerIndex<3){

panel.cornerIndex++;

panel.corner[0]=panel.xSin[panel.cornerIndex];

panel.corner[1]=panel.ySin[panel.cornerIndex];

}else{

panel.cornerIndex=0;

panel.corner[0]=panel.xSin[panel.cornerIndex];

panel.corner[1]=panel.ySin[panel.cornerIndex];

}

} });

action2.addMouseListener(new MouseAdapter() {

public void mouseClicked(MouseEvent evt) {

panel.myColor = selector();

}});

speedup.addMouseListener(new MouseAdapter() {

public void mouseClicked(MouseEvent evt) {

panel.speed+=0.05;

}});

speeddown.addMouseListener(new MouseAdapter() {

public void mouseClicked(MouseEvent evt) {

panel.speed-=0.05;

}});

switchDir.addMouseListener(new MouseAdapter() {

public void mouseClicked(MouseEvent evt) {

if(panel.path){

panel.path=false;

}else panel.path=true;

}});

GroupLayout layout = new GroupLayout(getContentPane());

getContentPane().setLayout(layout);

layout.setHorizontalGroup(

layout.createParallelGroup( GroupLayout.Alignment.LEADING).addGroup(

layout.createSequentialGroup().addGap(26, 26, 26).addGroup(

layout.createParallelGroup(GroupLayout.Alignment.LEADING, false).addComponent(panel, GroupLayout.DEFAULT\_SIZE, 296, Short.MAX\_VALUE)

.addGroup(layout.createSequentialGroup().addGap(54, 54, 54)

.addComponent(action1).addGap(25,25,25).addComponent(action2))

.addGroup(layout.createSequentialGroup().addComponent(speedup).addGap(25,25,25).addComponent(speeddown).addGap(25,25,25).addComponent(switchDir)

))));

layout.setVerticalGroup(

layout.createSequentialGroup().addPreferredGap( LayoutStyle.ComponentPlacement.UNRELATED).addComponent(panel).addGap(20,20,20)

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING).addComponent(speedup).addGap(20,20,20).addComponent(speeddown).addGap(20,20,20).addComponent(switchDir)).addGap(10,10,10)

.addGroup(layout.createParallelGroup(GroupLayout.Alignment.LEADING).addComponent(action1).addGap(20,20,20).addComponent(action2))

);

pack();

}

public static void main(String args[]) {

java.awt.EventQueue.invokeLater(new Runnable() {

public void run() {

new aux5().setVisible(true);

}});}

Color selector(){

Color[] Col={Color.BLACK,Color.BLUE,Color.CYAN,Color.RED,Color.ORANGE,Color.GREEN,Color.YELLOW,Color.PINK};

Random generator = new Random();

int j = generator.nextInt(256);

Random generator2 = new Random();

int l = generator2.nextInt(256);

Random generator3 = new Random();

int k = generator3.nextInt(256);

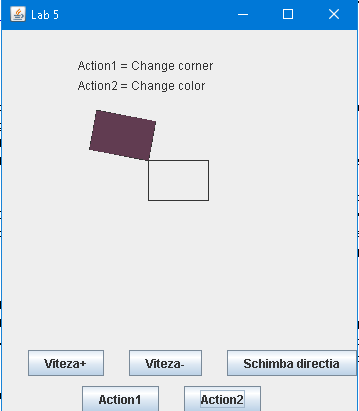
Color col= new Color(j,l,k);

return col;

}

}

***Rezultatul executarii:***



**Concluzie:**

In urma efectuarii acestei lucrari am insusit modalitatile de creare si realizare a evenimentelor si animatiilor in Java, am creat obiecte proprii, modificari proprii si tratare de evenimente;