package threads;

import java.awt.BorderLayout;

import java.awt.Color;

import java.awt.GridLayout;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.util.Random;

import javax.swing.JButton;

import javax.swing.JFrame;

import javax.swing.JLabel;

import javax.swing.JPanel;

import javax.swing.JProgressBar;

public class ex1 extends JFrame{

JLabel car1 , car2, lwinner ;

JPanel p1,p2 , p3 ;

JProgressBar pbCar1, pbCar2 ;

JButton bStart,bReset ;

Thread th1 , th2 , th3;

boolean Finished ;

int winnerID ;

public ex1 () {

super ("Racing program") ;

p1 = new JPanel();

p1.setLayout(new GridLayout(2,2));

p2 = new JPanel();

p2.setLayout(new GridLayout(2,1));

p3 = new JPanel();

//// Panel 1 ////

car1 = new JLabel("Ferrari");

car1.setHorizontalAlignment(JLabel.CENTER);

car2 = new JLabel("Porsche");

car2.setHorizontalAlignment(JLabel.CENTER);

pbCar1 = new JProgressBar(0,100) ;

pbCar1.setForeground(Color.red);

pbCar2 = new JProgressBar(0,100) ;

pbCar2.setForeground(Color.BLUE);

p1.add(car1) ;

p1.add(car2);

p1.add(pbCar1) ;

p1.add(pbCar2);

////\*\*\* Panel 1 \*\*\*////

//// Panel 2 ////

lwinner = new JLabel ("Race Did not start yet") ;

lwinner.setHorizontalAlignment(JLabel.CENTER);

bStart = new JButton("Start") ;

bReset = new JButton("Reset");

bStart.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

// TODO Auto-generated method stub

lwinner.setText("The Race STARTED !!!"); // CHanging the lable to indicated the start of the race..

Finished = false ;

winnerID = 0 ;

th1 = new Thread(new car(pbCar1,1)) ;

th2 = new Thread(new car(pbCar2,2)) ;

th3 = new Thread(new CheackingTheWinner ()); //This thread will be the referee, a loop will be checking if any of the cars has reached the finish line if so the race will be stoped and a winner will be declared.

th1.start();

th2.start();

th3.start() ;

}

});

bReset.addActionListener(new ActionListener() {

@Override

public void actionPerformed(ActionEvent e) {

// TODO Auto-generated method stub

lwinner.setText("Race Did not start yet");

pbCar1.setValue(0);

pbCar1.repaint();

pbCar2.setValue(0);

pbCar2.repaint();

}

});

p3.add(bStart);

p3.add(bReset);

p2.add(lwinner) ;

p2.add(p3) ;

////\*\*\* Panel 2 \*\*\*////

add(p1 , BorderLayout.NORTH) ;

add(p2 , BorderLayout.SOUTH) ;

setVisible(true);

setSize(250,250);

setDefaultCloseOperation(EXIT\_ON\_CLOSE);

}

public static void main(String[] args) {

new ex1() ;

}

public class car implements Runnable {

JProgressBar tempBar ;

int id;

Random r = new Random();

public car(JProgressBar pb, int i) {

// TODO Auto-generated constructor stub

tempBar = pb;

id =i ;

}

@Override

public void run() {

// TODO Auto-generated method stub

for (int i = 0 ; i < 101 ; i ++) {

tempBar.setValue(i);

tempBar.repaint();

try {

Thread.sleep (r.nextInt(200)) ; // sleep for a random number of time

}catch (Exception e){

}

}

winnerID = id ;

Finished = true;

}

}

public class CheackingTheWinner implements Runnable {

@Override

public void run() {

System.out.println(Finished);

while (!Finished){

try {

Thread.sleep(1);

} catch (InterruptedException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

th1.suspend();

th2.suspend();

if (winnerID == 1){

lwinner.setText("The Winner of the Race is Ferrari !!! ");

System.out.println("The Winner of the Race is Ferrari !!!");

}else {

lwinner.setText("The Winner of the Race is Porsche !!! ");

System.out.println("The Winner of the Race is Porsche !!!");

}

}

}

}