```java


//Name: Mister S
//Date: 10/29/18
/*
 * This project codes a timer
 * and animation
 */



import javax.imageio.ImageIO;
import javax.swing.*;

import java.awt.*;
import java.awt.event.ActionListener;
import java.awt.event.ActionEvent;
import java.awt.image.BufferedImage;
import java.io.File;
import java.io.IOException;


import java.awt.event.*;



public class Main extends JFrame implements ActionListener{



        //timer buttons
        JButton btnStart = new JButton("Start");
        JButton btnStop = new JButton("Stop");

        //Location variables for circle
        int intX = 50;
        int intY = 200;

        int intXAmount = 10;

        boolean OnorOff = false;

        Timer myTimer = new Timer(100, this);

        DefineObject Circles[] = new DefineObject[50];

        private Graphics2D buffer;
        private Image offscreen;



        //create the init method
        //the init is the first method to run

        public Main(){

```

```
58                  super("Button Test");
59                  setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
60                  setLayout(new FlowLayout());
61                  //pnlInput.setLayout(new GridLayout(0,2));
62                  add(btnStart);
63                  add(btnStop);
64
65                  btnStart.addActionListener(this);
66                  btnStop.addActionListener(this);
67                  for (int j = 0; j<Circles.length; j++){
68                          Circles[j] = new DefineObject();
69                  }
70                  //give the array its properties
71                  for (int i = 0; i < Circles.length; i++){
72                          int xpos, ypos, xspeed, yspeed;
73                          xpos = (int)(Math.random()*450);
74                          ypos = (int)(Math.random()*450);
75                          xspeed = (int)(Math.random()*2);
76                          yspeed = (int)(Math.random()*2);
77
78                          if (xspeed == 0){
79                                  xspeed = 10;
80                          }
81                          else {
82                                  xspeed = -10;
83                          }
84                          if (yspeed == 0){
85                                  yspeed = 10;
86                          }
87                          else {
88                                  yspeed = -10;
89                          }
90                          Circles[i].setCircle(xpos, ypos, xspeed, yspeed, "Red");
91                  }
92
93                  repaint();
94
95
96
97          }
98
99
100
101         public static void main(String[]args){
102
103                 //Place components on the applet panel
104                 final int FRAME_WIDTH = 500;
105                 final int FRAME_HEIGHT = 500;
106
107                 Main frame = new Main();
108                 frame.setSize(FRAME_WIDTH, FRAME_HEIGHT);
109                 frame.setVisible(true);
110
111
112         }
113         //when you push the button it comes this method
114         public void actionPerformed(ActionEvent event){
```

```
115
116                 //declare variable to hold which button is called
117                 Object objsource = event.getSource();
118                 //requestFocus();
119
120                 if (objsource == btnStop){
121                         stopTheTimer();
122                 }
123                 else if (objsource == btnStart){
124                         startTheTimer();
125                 }
126                 if(OnorOff){
127                         for (int m = 0; m < Circles.length; m++){
128                                 Circles[m].xDist += Circles[m].velX;
129                                 Circles[m].yDist += Circles[m].velY;
130                         }
131                         repaint();
132                 }
133
134         }
135
136
137
138
139         //create the paint method to show graphics
140         public void paint(Graphics g){
141
142                 offscreen = createImage(getSize().width, getSize().height);
143                 buffer = (Graphics2D)offscreen.getGraphics();
144                 for(int n = 0; n < Circles.length; n++){
145                         buffer.setColor(Color.red);
146                         buffer.fillOval(Circles[n].xDist, Circles[n].yDist, 5, 5);
147
148                         if(Circles[n].xDist <=0){
149                                 Circles[n].velX*=-1;
150                         }
151                         else if (Circles[n].xDist >= 495){
152                                 Circles[n].velX*=-1;
153                         }
154                         if(Circles[n].yDist <=0){
155                                 Circles[n].velY*=-1;
156                         }
157                         else if (Circles[n].yDist >= 495){
158                                 Circles[n].velY*=-1;
159                         }
160                 }
161                 g.drawImage(offscreen, 0, 0, this);
162
163         }
164         public void Update(Graphics gr){
165
166                 //call the paint method
167                 paint(gr);
168         }
169
170         public void startTheTimer(){
171                 myTimer.start();
```

```
172                 OnorOff = true;
173         }
174
175         public void stopTheTimer(){
176                 myTimer.stop();
177                 OnorOff = false;
178         }
179
180 }
181
182
183
184
```