

```
1
2 //Name: David Lim
3 //Date: 10/23/22
4 /*
5  * space invader
6  */
7
8 import javax.imageio.ImageIO;
9 import javax.swing.*;
10
11 import java.awt.*;
12 import java.awt.event.ActionListener;
13 import java.awt.event.ActionEvent;
14 import java.awt.image.BufferedImage;
15 import java.io.File;
16 import java.io.IOException;
17
18 import java.awt.event.*;
19
20 public class Main extends JFrame implements KeyListener, ActionListener {
21
22     // declare our componets or fields
23     // a field is a global level variable.
24
25     int intXAmount = 10;
26     int speedX = 10;
27     int speedY = 10;
28     int playerX = 50;
29     int playerY = 400;
30
31     int invaderX = 200;
32     int invaderY = 50;
33     int invadervelX = 5;
34     int invadervelY = 5;
35     int invaderlives = 3;
36
37     int bulletSpeed = 20;
38     int bulletX = playerX + 20;
39     int bulletY = playerY + 20;
40     boolean bulletMove = false;
41
42     boolean hit = false;
43
44     Timer invaderTimer = new Timer(50, this);
45     boolean timerState = true;
46     private Graphics2D buffer;
47     private Image offscreen;
48
49     public Main() {
50
51         super("Mini space invader");
52
53         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
54         setLayout(new FlowLayout());
55         // pnlInput.setLayout(new GridLayout(0,2));
56         invaderTimer.start();
57         invaderTimer.addActionListener(this);
```

```
58     addKeyListener(this);
59
60 }
61
62 public static void main(String[] args) {
63
64     // Place components on the applet panel
65     final int FRAME_WIDTH = 500;
66     final int FRAME_HEIGHT = 500;
67     Main frame = new Main();
68     frame.setSize(FRAME_WIDTH, FRAME_HEIGHT);
69     frame.setVisible(true);
70
71 }
72
73 // when you push the button it comes this method
74 public void actionPerformed(ActionEvent event) {
75
76     // declare variable to hold which button is called
77
78     if (invaderX >= 460){
79         invaderVelX *=-1;
80     }
81     else if (invaderX <= 0){
82         invaderVelX *=-1;
83     }
84     if (invaderY <20){
85         invaderVelY *=-1;
86     }
87     else if (invaderY >=460){
88         invaderVelY*=-1;
89     }
90     invaderX += invaderVelX;
91     invaderY += invaderVelY;
92
93
94     requestFocus();
95     repaint();
96 }
97
98 // create the paint method to show graphics
99 public void paint(Graphics g) {
100
101     offscreen = createImage(getSize().width, getSize().height);
102     buffer = (Graphics2D)offscreen.getGraphics();
103     buffer.setColor(Color.red);
104     buffer.fillRect(playerX, playerY, 50, 50);
105
106     buffer.setColor(Color.black);
107     buffer.fillRect(bulletX, bulletY, 10,10);
108
109     buffer.setColor(Color.blue);
110     buffer.fillRect(invaderX, invaderY, 40, 40);
111     g.drawImage(offscreen, 0, 0, this);
112
113
114     if (bulletMove == true){
```

```
115     bulletY -= bulletSpeed;
116     if (bulletY <= 0){
117         bulletY = playerY + 20;
118         bulletX = playerX + 20;
119         bulletMove = false;
120     }
121 }
122
123 boolean check = checkHit(bulletX, bulletY, invaderX, invaderY);
124 if (check){
125     bulletY = playerY + 20;
126     bulletX = playerX + 20;
127     bulletMove = false;
128     invaderLives -= 1;
129     System.out.println(invaderLives);
130     hit = false;
131 }
132
133 if (invaderLives <= 0){
134     invaderY = 20;
135 }
136 }
137
138 public void Update(Graphics gr) {
139     // call the paint method
140     paint(gr);
141 }
142
143 public void keyPressed(KeyEvent e) {
144
145     int key = e.getKeyCode();
146     // nameTextField.setText(""+ key);
147     if (key == 37 && playerX >= 20) {
148         playerX -= speedX;
149         if (!bulletMove){
150             bulletX -= speedX;
151         }
152     }
153     if (key == 39 && playerX + 50 <= 480) {
154         playerX += speedX;
155         if (!bulletMove){
156             bulletX += speedX;
157         }
158     }
159     if (key == 32){
160         bulletMove = true;
161     }
162 }
163
164 public void keyReleased(KeyEvent e) {
165     // nameTextField.setText("");
166 }
167
168 public void keyTyped(KeyEvent e) {
169
170 }
171 }
```

```
172     public boolean checkHit(int bulletx, int bullety, int invaderx, int invadery){
173         if (bulletx >= invaderx && bulletx + 10 <= invaderx + 40 && bullety >= invadery &&
bulletly + 10 <= invadery + 40 && bulletMove){
174             hit = true;
175         }
176         return hit;
177     }
178 }
179
180 }
```