

Programação Orientada a Objetos para Jogos Digitais I

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Atividade Framework 3

Objetivo

Criar um simples jogo de um balde que anda de um lado para outro, afim de coletar gotas que caem do céus, com som e sprites dados pelo professor.

Código

```
1 package com.astradev.gota;  
2  
3 import java.util.Iterator;  
4  
5 import com.badlogic.gdx.ApplicationAdapter;  
6 import com.badlogic.gdx.Gdx;  
7 import com.badlogic.gdx.Input.Keys;  
8 import com.badlogic.gdx.audio.Music;  
9 import com.badlogic.gdx.audio.Sound;  
10 import com.badlogic.gdx.graphics.GL20;  
11 import com.badlogic.gdx.graphics.OrthographicCamera;  
12 import com.badlogic.gdx.graphics.Texture;  
13 import com.badlogic.gdx.graphics.g2d.SpriteBatch;  
14 import com.badlogic.gdx.math.MathUtils;  
15 import com.badlogic.gdx.math.Rectangle;  
16 import com.badlogic.gdx.math.Vector3;  
17 import com.badlogic.gdx.utils.Array;  
18 import com.badlogic.gdx.utils.TimeUtils;  
19  
20 public class Gota extends ApplicationAdapter {  
21     private SpriteBatch batch;  
22     private OrthographicCamera camera;  
23     private Texture gotaImage;  
24     private Texture baldeImage;  
25     private Sound gotaSound;  
26     private Music chuvaMusic;  
27  
28     private Rectangle balde;  
29     private Array<Rectangle> droplets;  
30     private long instanceLastDroplet;
```

```

33 @Override
34 public void create () {
35     batch = new SpriteBatch();
36     gotaImage = new Texture(Gdx.files.internal("gota.png"));
37     baldeImage = new Texture(Gdx.files.internal("balde.png"));
38
39     gotaSound = Gdx.audio.newSound(Gdx.files.internal("gota.wav"));
40     chuvaMusic = Gdx.audio.newMusic(Gdx.files.internal("chuva.mp3"));
41
42     chuvaMusic.setLooping(true);
43     chuvaMusic.play();
44
45     camera = new OrthographicCamera();
46     camera.setToOrtho(false, 800, 480);
47
48     //Criar Balde
49     balde = new Rectangle();
50     balde.x = 800 / 2 - 64 / 2;
51     balde.y = 20;
52
53     balde.width = 64;
54     balde.height = 64;
55
56     droplets = new Array<Rectangle>();
57     newDroplet();
58 }
59

```

```

60 @Override
61 public void render () {
62
63     tick();
64
65     Gdx.gl.glClearColor(0, 0, 0.2f, 1);
66     Gdx.gl.glClear(GL20.GL_COLOR_BUFFER_BIT);
67
68     camera.update();
69
70     batch.setProjectionMatrix(camera.combined);
71
72     batch.begin();
73     batch.draw(baldeImage, balde.x, balde.y);
74     for(Rectangle droplet: droplets) {
75         batch.draw(gotaImage, droplet.x, droplet.y);
76     }
77     batch.end();
78 }

```

```

80 @Override
81 public void dispose () {
82     baldeImage.dispose();
83     gotaSound.dispose();
84     chuvaMusic.dispose();
85     gotaSound.dispose();
86     batch.dispose();
87
88 }

```

```

90 private void tick() {
91     if(Gdx.input.isTouched()) {
92         Vector3 location = new Vector3();
93         location.set(Gdx.input.getX(), Gdx.input.getY(), 0);
94         camera.unproject(location);
95         balde.x = location.x - 64 / 2;
96     }
97
98     if(Gdx.input.isKeyPressed(Keys.LEFT))
99         balde.x -= 200 * Gdx.graphics.getDeltaTime();
100     if(Gdx.input.isKeyPressed(Keys.RIGHT))
101         balde.x += 200 * Gdx.graphics.getDeltaTime();
102     if(balde.x < 0) balde.x = 0;
103     if(balde.x > 800 - 64) balde.x = 800 - 64;
104
105     if(TimeUtils.nanoTime() - instanceLastDroplet > 1000000000)
106         newDroplet();
107
108     for (Iterator<Rectangle> iter = droplets.iterator(); iter.hasNext();) {
109         Rectangle droplet = iter.next();
110         droplet.y -= 200 * Gdx.graphics.getDeltaTime();
111         if (droplet.y + 64 < 0) iter.remove();
112         if (droplet.overlaps(balde)) {
113             gotaSound.play();
114             iter.remove();
115         }
116     }
117 }
118
119
120 private void newDroplet() {
121     Rectangle droplet = new Rectangle();
122     droplet.x = MathUtils.random(0, 800-64);
123     droplet.y = 480;
124     droplet.width = 64;
125     droplet.height = 64;
126     droplets.add(droplet);
127     instanceLastDroplet = TimeUtils.nanoTime();
128 }
129 }

```

Conclusão

Aprendizado de itens básicos