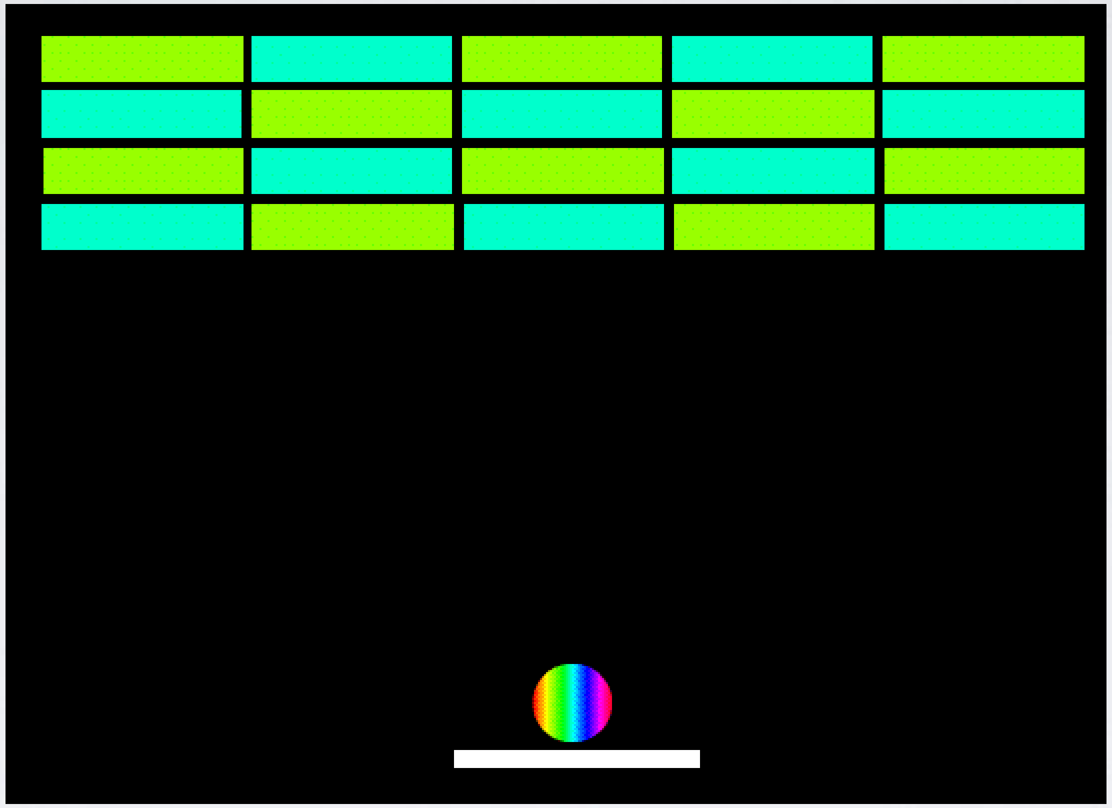


JOGO BRICKS

Alysson Diniz dos Santos

Codigo inicial do jogo Bricks

```
function draw() {
    colorRect(0,0, canvas.width,canvas.height, 'black'); // clear screen
    colorCircle(ballX,ballY, 10, 'white'); // draw ball
    colorRect(paddleX, canvas.height-PADDLE_DIST_FROM_EDGE,
                PADDLE_WIDTH, PADDLE_THICKNESS, 'white’);
}
```

```
function move() {
     if(ballX < 0)  //left
          ballSpeedX *= -1;
    if(ballX > canvas.width)  // right
          ballSpeedX *= -1;
    if(ballY < 0)  // top
          ballSpeedY *= -1;
    if(ballY > canvas.height)  // bottom
          ballReset();
...
```

```
var paddleTopEdgeY = canvas.height-PADDLE_DIST_FROM_EDGE;
var paddleBottomEdgeY = paddleTopEdgeY + PADDLE_THICKNESS;
var paddleLeftEdgeX = paddleX;
var paddleRightEdgeX = paddleLeftEdgeX + PADDLE_WIDTH;
```

```
if( ballY > paddleTopEdgeY && // below the top of paddle
    ballY < paddleBottomEdgeY && // above bottom of paddle
    ballX > paddleLeftEdgeX && // right of the left side of paddle
    ballX < paddleRightEdgeX) { // left of the left side of paddle

    if(ballSpeedY > 0)
        ballSpeedY *= -1;
    var centerOfPaddleX = paddleX+PADDLE_WIDTH/2;
    var ballDistFromPaddleCenterX = ballX - centerOfPaddleX;
    ballSpeedX = ballDistFromPaddleCenterX *
                    maxBallSpeedX/(PADDLE_WIDTH/4);
}

ballX += ballSpeedX*deltaP; // move the ball based on its current horizontal speed
ballY += ballSpeedY*deltaP; // same as above, but for vertical
```

1° passo: desenhem a coordenada X e Y do mouse na posiçao do mouse

2° passo: desenhem uma fila de 4 tijolos no canto superior da tela (com largura 100 e altura 50)

```
const BRICK_W = 100;
const BRICK_H = 50;

…

function drawBricks() {
    colorRect(0,0, BRICK_W,BRICK_H, 'blue');
    colorRect(BRICK_W,0, BRICK_W,BRICK_H, 'blue');
    colorRect(BRICK_W*2,0, BRICK_W,BRICK_H, 'blue');
    colorRect(BRICK_W*3,0, BRICK_W,BRICK_H, 'blue');
}
```

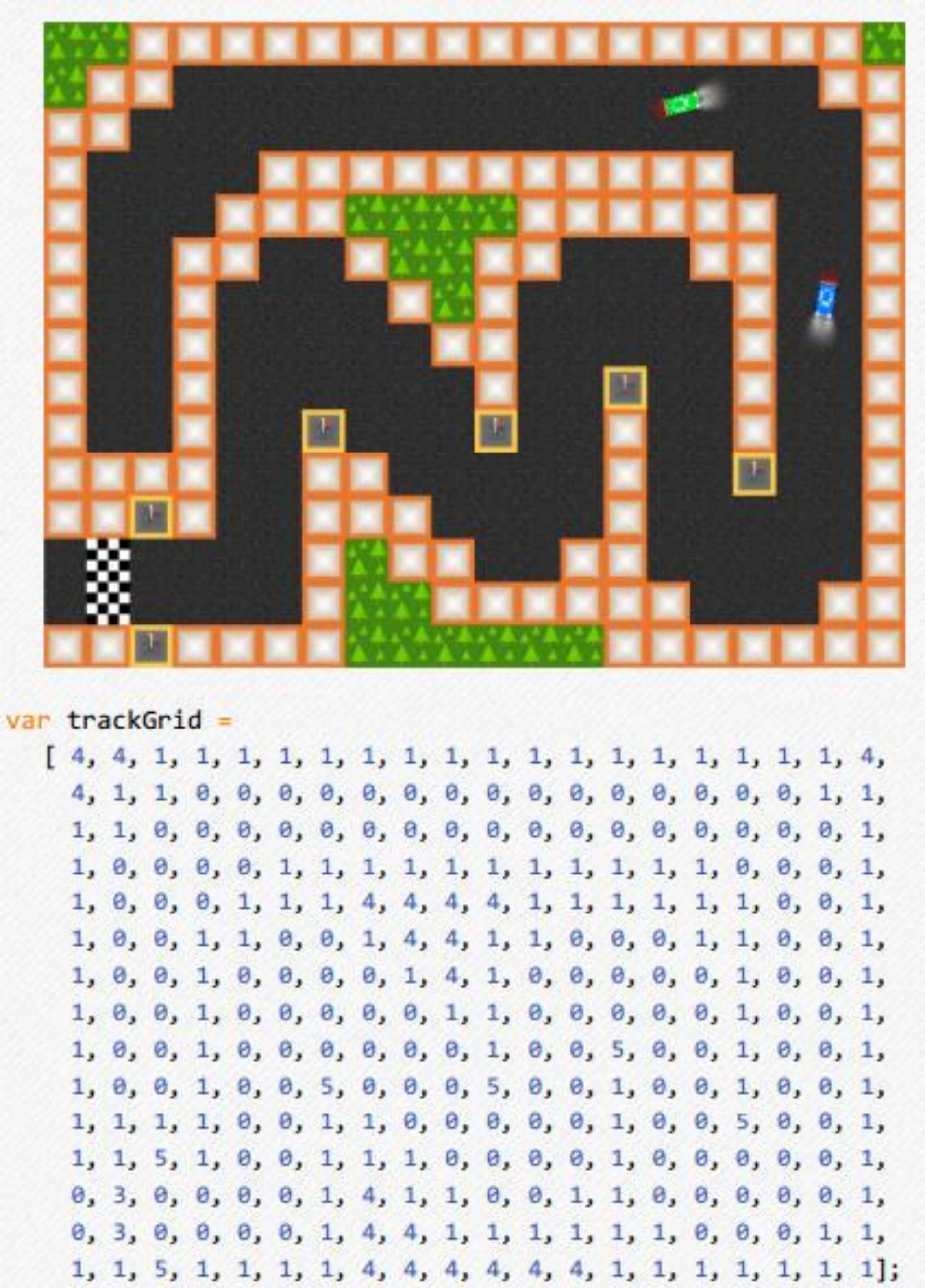
Adicionando um gap (meramente visual) entre eles

```
const OFFSET_H = 2;

…

function drawBricks() {
	colorRect(0,0, BRICK_W- OFFSET_H,BRICK_H, 'blue');
	colorRect(BRICK_W,0, BRICK_W- OFFSET_H,BRICK_H, 'blue');
	colorRect(BRICK_W*2,0, BRICK_W- OFFSET_H,BRICK_H, 'blue');
	colorRect(BRICK_W*3,0, BRICK_W- OFFSET_H,BRICK_H, 'blue');
}
```

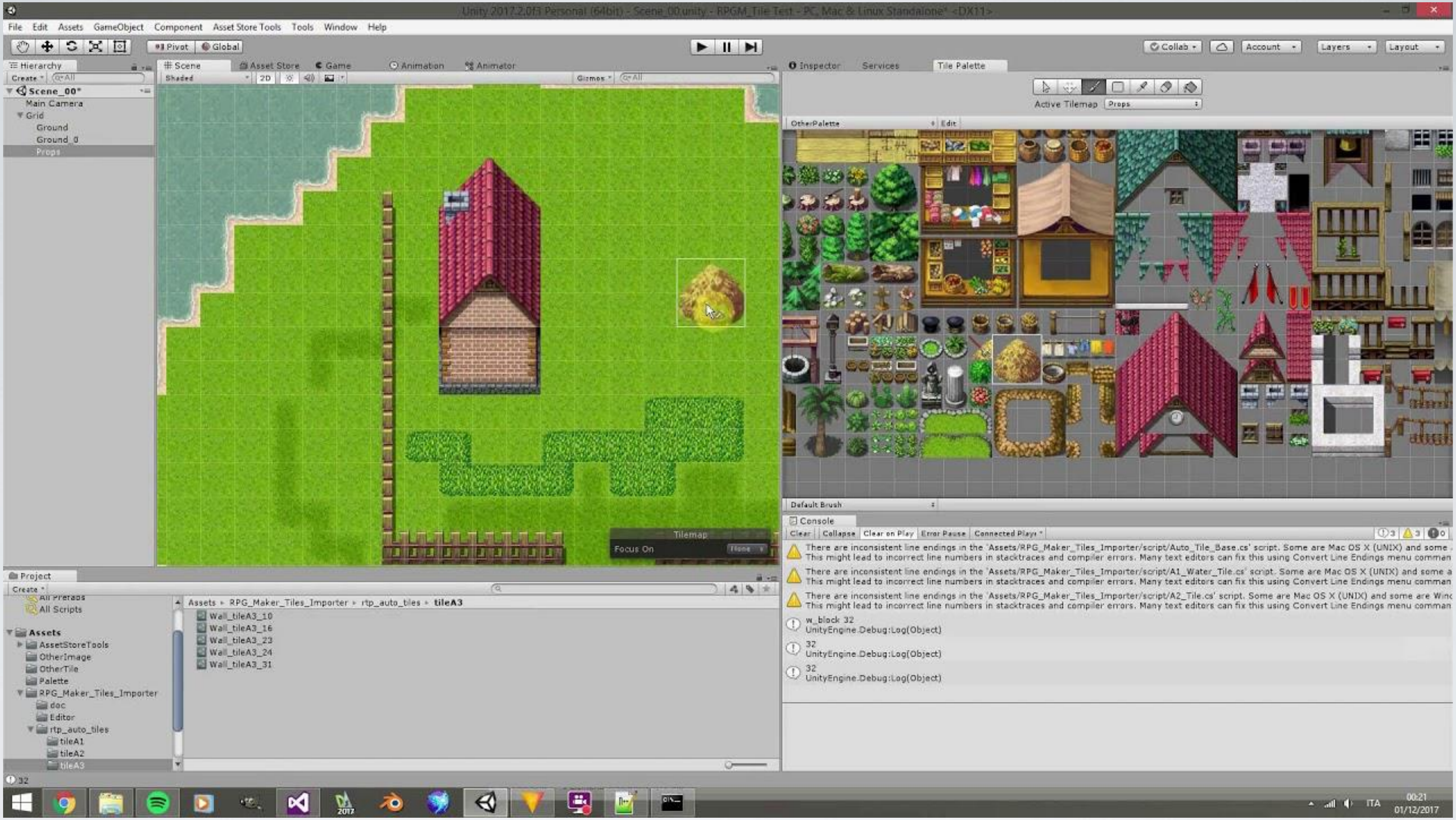
3° passo: sumir com tijolos individualmente

```
var brickGrid = [ false, true, true, false ];
…


function drawBricks() {
        if(brickGrid[0] == true)
                colorRect(0,0, BRICK_W- OFFSET_H,BRICK_H, 'blue’);
        if(brickGrid[1] == true)
                colorRect(BRICK_W,0, BRICK_W- OFFSET_H,BRICK_H, 'blue');
         if(brickGrid[2] == true)
                colorRect(BRICK_W*2,0, BRICK_W- OFFSET_H,BRICK_H, 'blue’);
         if(brickGrid[3] == true)
                colorRect(BRICK_W*3,0, BRICK_W- OFFSET_H,BRICK_H, 'blue');
}
```

Tilemap – mapa dos tiles de um jogo 2d



```
var trackGrid =
  [ 4, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 4,
    4, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1,
    1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
    1, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 1,
    1, 0, 0, 0, 1, 1, 1, 4, 4, 4, 4, 1, 1, 1, 1, 1, 1, 0, 0, 1,
    1, 0, 0, 1, 1, 0, 0, 1, 4, 4, 1, 1, 0, 0, 0, 1, 1, 0, 0, 1,
    1, 0, 0, 1, 0, 0, 0, 0, 1, 4, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1,
    1, 0, 0, 1, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1,
    1, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 5, 0, 0, 1, 0, 0, 1,
    1, 0, 0, 1, 0, 0, 5, 0, 0, 0, 5, 0, 0, 1, 0, 0, 1, 0, 0, 1,
    1, 1, 1, 1, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0, 0, 5, 0, 0, 1,
    1, 1, 5, 1, 0, 0, 1, 1, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1,
    0, 3, 0, 0, 0, 0, 1, 4, 1, 1, 0, 0, 1, 1, 0, 0, 0, 0, 0, 1,
    0, 3, 0, 0, 0, 0, 1, 4, 4, 1, 1, 1, 1, 1, 1, 0, 0, 0, 1, 1,
    1, 1, 5, 1, 1, 1, 1, 4, 4, 4, 4, 4, 4, 1, 1, 1, 1, 1, 1, 1];
```



```
There are inconsistent line endings in the 'Assets/RPG_Maker_Tiles_Importer/script/Auto_Tile_Base.cs' script. Some are Mac OS X (UNIX) and some
This might lead to incorrect line numbers in stacktraces and compiler errors. Many text editors can fix this using Convert Line Endings menu comman
There are inconsistent line endings in the 'Assets/RPG_Maker_Tiles_Importer/script/A1_Water_Tile.cs' script. Some are Mac OS X (UNIX) and some a
This might lead to incorrect line numbers in stacktraces and compiler errors. Many text editors can fix this using Convert Line Endings menu comman
There are inconsistent line endings in the 'Assets/RPG_Maker_Tiles_Importer/script/A2_Tile.cs' script. Some are Mac OS X (UNIX) and some are Winc
This might lead to incorrect line numbers in stacktraces and compiler errors. Many text editors can fix this using Convert Line Endings menu comman
w_block 32
UnityEngine.Debug:Log(Object)
32
UnityEngine.Debug:Log(Object)
32
UnityEngine.Debug:Log(Object)
```

Tileset – conjunto de todos os tiles de um jogo 2d

Utilizando um laço

```
const BRICK_COUNT = 8;
var brickGrid = new Array(BRICK_COUNT);…

function drawBricks() {
    for(var i=0;i<BRICK_COUNT;i++) {
        if(brickGrid[i]) {
            colorRect(BRICK_W*i,0, BRICK_W-2,BRICK_H, 'blue');
        }
    }
}
```

Sumindo com os tijolos aleatoriamente

```
function brickReset() {
    for(var i=0; i<BRICK_COUNT; i++) {
        if(Math.random() < 0.5)
            brickGrid[i] = true;
        else
            brickGrid[i] = false;
    }
}
```

Coordenadas em pixels x Coordenadas em tijolos

```
function drawEverything() {
    colorRect(0,0, canvas.width,canvas.height, 'black'); // clear screen

    colorCircle(ballX,ballY, 10, 'white'); // draw ball

    colorRect(paddleX, canvas.height-PADDLE_DIST_FROM_EDGE,
                  PADDLE_WIDTH, PADDLE_THICKNESS, 'white');

    drawBricks();

    var mouseBrickCol = mouseX / BRICK_W;
    var mouseBrickRow = mouseY / BRICK_H;
    colorText(mouseBrickCol+","+mouseBrickRow, mouseX, mouseY, 'yellow');
}
```

Exercicio: apagar os bricks sobre os quais o mouse passa por cima

Referencias:

- Game Programming Algorithms and Techniques – Chapter 1
- Game Programming Patterns – Game Loop (http://gameprogrammingpatterns.com/game-loop.html)