INF1805

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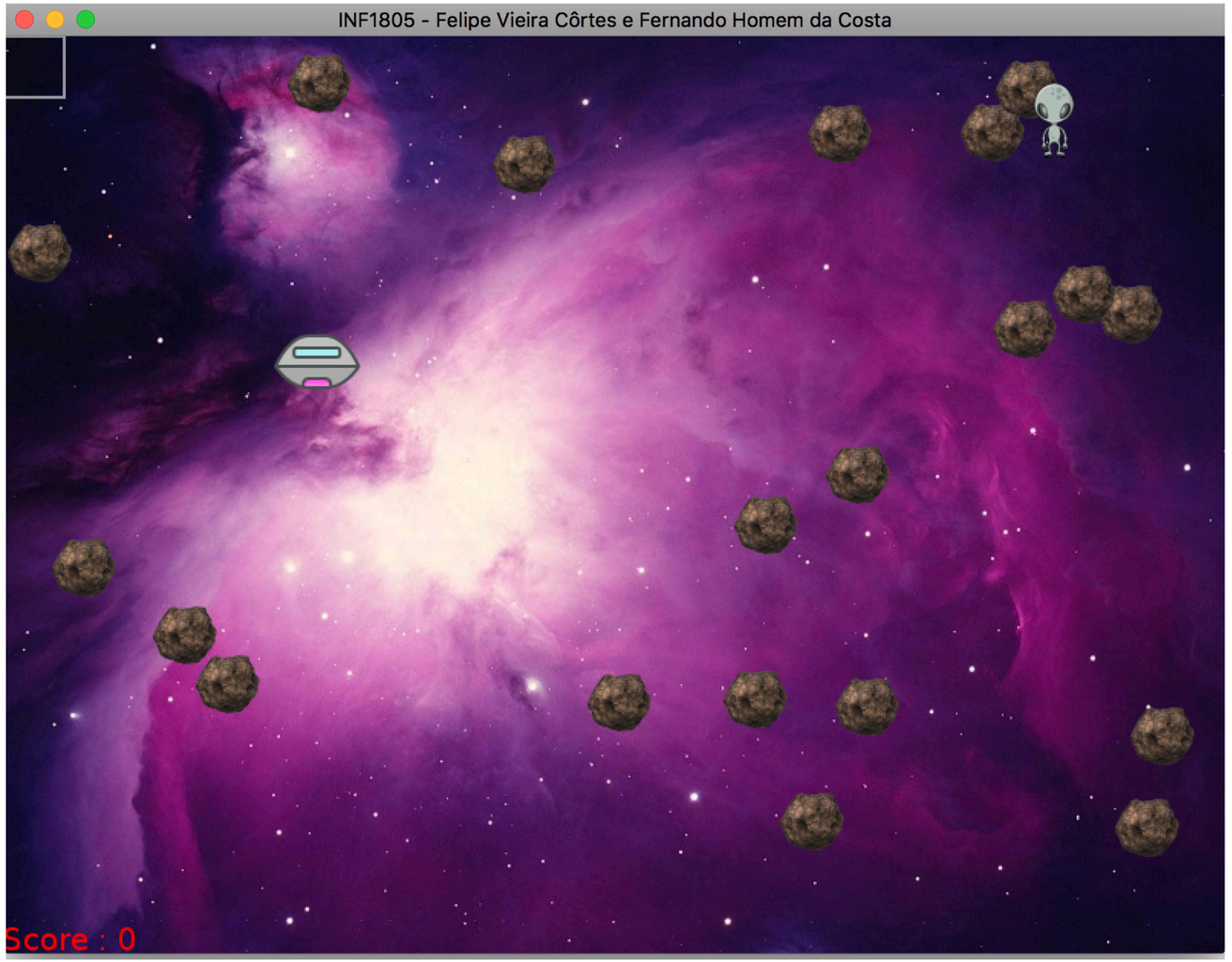
www.github.com/nandohdc/inf1805

OBJETIVO

- Desenvolver um jogo utilizando LOVE e a linguagem Lua.
- Criar funções auxiliares em Lua para descrever o comportamento dos personagens.
- Utilizando conceitos aprendidos em aula:
  - Encapsulamento de funções.
  - Co-rotinas

JOGO

- O jogo é composto por uma nave espacial, asteroides e uma esfera azul.
- Nave é capaz de atirar e destruir os asteroides para chegar até a esfera azul.
- Quanto mais esferas azuis forem recolhidas maior será sua pontuação.
- Ao ser atingido por um asteroide sua nave voltará para origem e sua pontuação será zerada.



CÓDIGO

```
function love.load()
  love.window.setTitle("INF1805 - Felipe Vieira Côrtes e Fernando Homem da Costa")
  love.window.setMode(800, 600, {resizable=true, vsync=false, minwidth=400, minheight=300})
  img = {}
  img.background = love.graphics.newImage('/images/background.jpg') -- dimensions 800 x 600
  img.spaceship = love.graphics.newImage('/images/ufo.png') -- dimensions 64 x 64
  img.asteroid = love.graphics.newImage('/images/asteroid.png') -- dimensions 64 x 64
  img.objective = love.graphics.newImage('/images/rebels.png') -- dimensions 64 x 64

  track = {}
  track.soundtrack =  love.audio.newSource("/Assets/1-10 The Empire Strikes Back_ The Imperial March .mp3")
  track.explosion =  love.audio.newSource("/Assets/Explosion.mp3")
  track.lasers = {}
  track.soundtrack:play()
  score = 0
  W, H=lg.getWidth(), lg.getHeight()
  Obstacles={}
  for i=1,20 do
    Obstacles[i] = newObs(i*50/50000)
  end
  Player = newPlayer(5/1000)
  Objective = newObjective()
  listaShot = {}
end

function love.draw()
  love.graphics.draw(img.background, 0, 0)
  lg.setColor(255,255,255,255)
  lg.rectangle('line', 0,0,40,40)
  for i = 1,#Obstacles do
    Obstacles[i].draw()
  end
  Player.draw()

  lg.setColor(255,0,0,255)
  font = love.graphics.newFont(20)
  font = love.graphics.setFont(font)
  lg.print("Score : "..score,0,HH - 20)
  lg.setColor(255,255,255,255)
  if collision then
    lg.setColor(255,255,255,255)
    score = 0
  end
  Objective.draw()
  for i=1,#listaShot do
    listaShot[i].draw()
  end
end
```

CÓDIGO

```
function newObs (vel)
  local _x,_y = math.random(0,WW),math.random(0,HH)
  local direction = "left"
  if math.random(0,1) > 0 then
    direction = "left"
  else
    direction = "right"
  end
  return {
    update = coroutine.wrap(function (self)
        while true do
            local width, height = love.graphics.getDimensions( )
            local oldX, oldY = _x,_y
            if direction == "left" then
              _x = _x+1
            else
              _x = _x-1
            end
            if _x > width then
              direction = "right"
              _x,_y = oldX,oldY
            end
            if _x < 0 then
              direction = "left"
              _x,_y = oldX,oldY
            end
            if _x <= 80 and _y <= 80 then
              direction = "left"
              _x,_y = oldX,oldY
            end
            self.x = _x
            wait(vel,self)
        end
    end),
    draw = function ()

      love.graphics.draw(img.asteroid, _x - 16, _y - 16)
    end,
    x = _x,
    y = _y,
    w = 40,
    h = 40,
    decorr = 0,
    hit = 0
  }
end
```

CÓDIGO

```
function newPlayer (vel)
  local _x, _y = 1, 1
  local oldZ, newZ = 0,0
  return {
    update = coroutine.wrap(function (self)
        while true do
            local width, height = love.graphics.getDimensions( )
            local direction = "up"
          local isDown=love.keyboard.isDown
      if isDown('right') or isDown('d') then
        _x = _x+1
        direction = "right"
      elseif isDown('left') or isDown('a') then
        _x = _x-1
        direction = "left"
      elseif isDown('up') or isDown('w') then
        _y = _y-1
        direction = "up"
      elseif isDown('down') or isDown('s') then
        _y = _y+1
        direction = "down"
      end
      if isDown('z') and (direction ~= "up" and direction ~= "down") then
        newZ = 1
        if(oldZ == 0 and newZ == 1) then
          oldZ = newZ
          table.insert(listaShot,newShot(1/500, direction))
          local newSource = love.audio.newSource("/Assets/LaserGun.mp3")
          table.insert(track.lasers,newSource)
          newSource:setVolume(0.1)
          newSource:play()
        end
        if(oldZ == 1 and newZ == 0) then
          oldZ = newZ
        end
      else
        newZ = 0
        oldZ = newZ
      end
        self.x = _x
        self.y = _y

        collision = false
      if not isOnScreen(self) or isColliding(self) then
        _x, _y=1,1
          collision=true
          track.explosion:setVolume(0.6)
          track.explosion:play()
      end
      self.x = _x
        self.y = _y
            wait(vel,self)
        end
    end),
    draw = function ()
        love.graphics.draw(img.spaceship, _x-16, _y-16)
    end,
```

CÓDIGO

```lua
function newObjective (vel)
  local _x,_y = math.random(0,WW),math.random(0,HH)
  local direction = "up"
  local floatingY = _y
  if math.random(0,1) > 0 then
    direction = "up"
  else
    direction = "down"
  end
  return {
    update = coroutine.wrap(function (self)
        while true do
            local width, height = love.graphics.getDimensions( )
            local oldX, oldY = _x,_y
            if direction == "up" then
              _y = _y+1
            else
              _y = _y-1
            end
            if _y >= floatingY + 25 then
              direction = "down"
              _y = oldY
            elseif _y <= floatingY then
              direction = "up"
              _y=oldY
            end
            self.y = _y
            wait(vel,self)
        end
    end),
    draw = function ()
      love.graphics.draw(img.objective, _x, _y)
     -- lg.rectangle('line',_x,_y,40,64)
    end,
    x = _x,
    y = _y,
    w = 32,
    h = 51,
    decorr = 0
  }
end
```

CÓDIGO

```
function newShot (vel,dir)
  local _x,_y,w,h = Player.x, Player.y+8,20,5
  local direction = dir
  return {
    update = coroutine.wrap(function (self)
        while true do
      if direction == "right" then
        _x = _x+1
      elseif direction == "left" then
        _x = _x-1
      elseif direction == "up" then
        _y = _y-1
      elseif direction == "down" then
        _y = _y+1
      elseif true then
        _x = _x+1
      end
      self.x,self.y = _x,_y
      if shotHit(self) or not isOnScreen(self) then
        self.hit = 1
      end
          wait(vel,self)
        end
    end),
    draw = function ()
      lg.setColor(255,0,0,255)
      lg.rectangle('fill',_x,_y,w,h)
      lg.setColor(255,255,255,255)
    end,
    x = _x,
    y = _y,
    w = 20,
    h = 5,
    hit = 0,
    decorr = 0
  }
end
```

DIFICULDADES ENCONTRADAS

- Lidar com a interação entre os objetos.
  - Criar funções auxiliares para que verificassem a colisão entre os objetos.

- Sincronizar os efeitos sonoros com as ações dos personagens.

Perguntas?

Obrigado!