# Moving randomly

The asset moves around in a random direction and bounces back at the borders.

On top of the usual fields, a star that is bouncing around has a speed and a direction for both the x and y axis.

The horizontal and vertical speeds get a random value between 200 and 300.
The directions are +1 or -1, making the assset move up, down, left or right.

In the `update(dt)` function:
– first, we calculate the next x and y position.
– if the next position is too close to the border of the window we invert the x and/ or y direction (the asset will go "back").
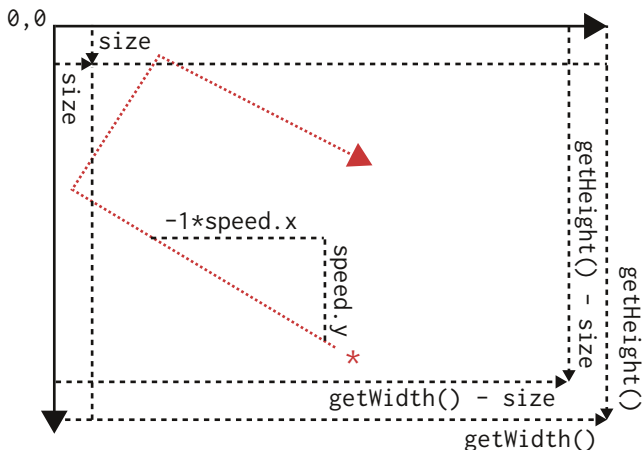– otherwise, we use the new values  as the current coordinates.

```lua
local star = {x = 175, y = 200,
  speed = {x = 0, y = 0},
  direction =  {x = 1, y = 1},
  char = '*', size = 5}

function love.load(arg)
  love.graphics.setFont(love.graphics.newFont(36))

  math.randomseed(os.time())
  star.speed.x = love.math.random(200, 300)
  star.speed.y = love.math.random(200, 300)
end
```

```lua
function love.update(dt)
  local newX = star.x + (star.speed.x * dt *
                               star.direction.x)
  local newY = star.y + (star.speed.y * dt *
                               star.direction.y)

  if (newX > (love.graphics.getWidth() -
          star.size)) or (newX < star.size) then
    star.direction.x = star.direction.x * -1
  else
    star.x = newX
  end

  if (newY > (love.graphics.getHeight() -
          star.size)) or (newY < star.size) then
    star.direction.y = star.direction.y * -1
  else
    star.y = newY
  end
end

function love.draw()
  love.graphics.print(star.char, star.x, star.y)
end
```



```lua
local star = {x = 175, y = 200,
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function love.load(arg)
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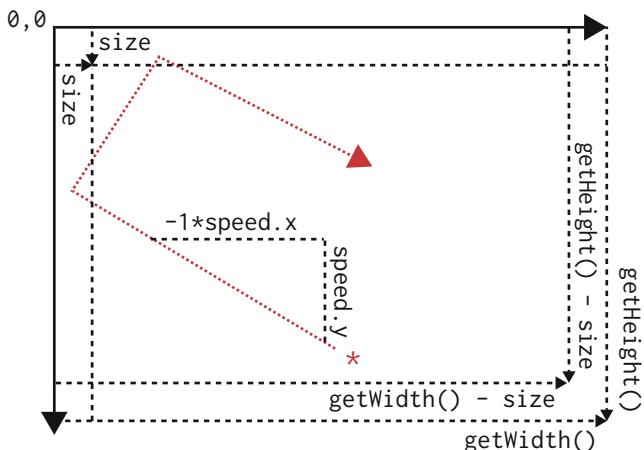
```lua
function love.update(dt)
  local newX = star.x + (star.speed.x * dt *
                               star.direction.x)
  local newY = star.y + (star.speed.y * dt *
                               star.direction.y)

  if (newX > (love.graphics.getWidth() -
          star.size)) or (newX < star.size) then
    star.direction.x = star.direction.x * -1
  else
    star.x = newX
  end

  if (newY > (love.graphics.getHeight() -
          star.size)) or (newY < star.size) then
    star.direction.y = star.direction.y * -1
  else
    star.y = newY
  end
end

function love.draw()
  love.graphics.print(star.char, star.x, star.y)
end
```