Check collision

With the right arrow key, you make a star move: when it hits the box, the box "jumps" to the right.

The work is done by the `update(dt)` function:

– if the right arrow key is pressed, the star moves to the right at the given speed.
– `if isColliding()` is true, the box gets moved by 100 pixels.

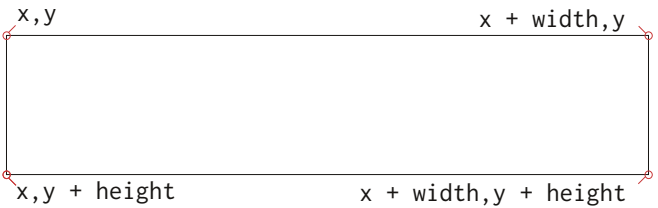
The `isColliding()` function is the core of this small program: it compares the corners of both shapes. The two shapes overlap if all the comparisons "match". In this case the function will return `true`. If any of the comparisons fails the function returns `false`.

```
local star = {x = 10, y = 200, speed = 150,
  char = '*', width = 10, height = 5}
local box = {x = 100, y = 200,
  char = '[ ]', width = 10, height = 5}

function isColliding(a, b)
  return
    a.x < b.x + b.width and
    b.x < a.x + a.width and
    a.y < b.y + b.height and
    b.y < a.y + a.height
end

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

function love.update(dt)
  if isColliding(star, box) then
    box.x = box.x + 100
  end

  if love.keyboard.isDown('right', 'd') then
    star.x = star.x + (star.speed * dt)
  end
end
```

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

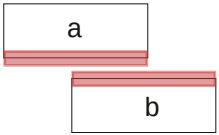
How does `isColliding()` work?

The `isCollding()` function has two arguments a and b that must have four properties: `x`, `y`, `height` and `width`.
The coordinates (`x`, `y`) and the size (`width`, `height`) are need for calculating the corner points of the shapes:

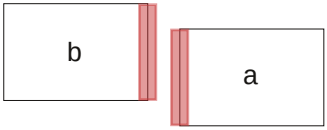


The four equations connected by the `and` conditions compare the corner points of the shapes `a` and `b`. The drawings below show in green the conditions that are met and in red the ones that are not met. The shapes are

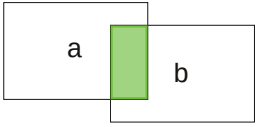
only colliding when all conditions are green:
if even one single one is red, the shapes are not colliding.




```
a.x < b.x + b.width
b.x < a.x + a.width
a.y < b.y + b.height
b.y < a.y + a.height
```




```
a.x < b.x + b.width
b.x < a.x + a.width
a.y < b.y + b.height
b.y < a.y + a.height
```




```
a.x < b.x + b.width
b.x < a.x + a.width
a.y < b.y + b.height
b.y < a.y + a.height
```