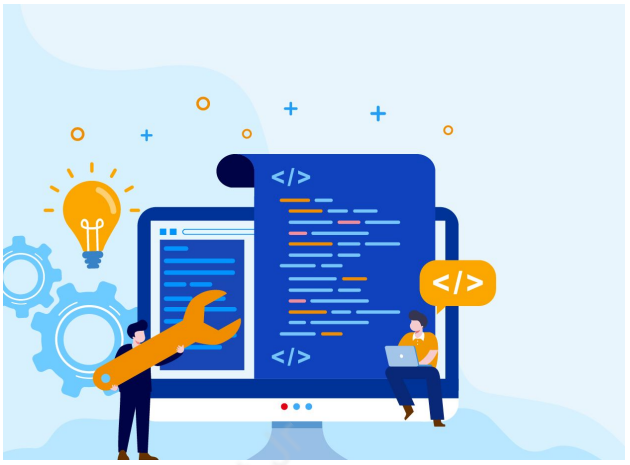
WRITING FUNCTIONS WHICH CAN TAKE ARGUMENTS



What is our GOAL for this MODULE?

We used our knowledge about algorithms to write functions which can take arguments.

What did we ACHIEVE in the class TODAY?

- Learned “true” and “false” as the two boolean values.
- Wrote a function which can accept arguments, return values and can be reused for the different game objects.
- Created a code library and used it within the code.

Which CONCEPTS/ CODING BLOCKS did we cover today?

- Creating custom function
- Boolean value

How did we DO the activities?

1. Download the boilerplate code and open it in Visual Studio Code. Using if-else conditions, write inside the code to detect collision between fixedRect and movingRect.

```
function setup() {
  createCanvas(1200,800);
  fixedRect = createSprite(600, 400, 50, 80);
  fixedRect.shapeColor = "green";
  fixedRect.debug = true;
  movingRect = createSprite(400,200,80,30);
  movingRect.shapeColor = "green";
  movingRect.debug = true;
}

function draw() {
  background(0,0,0);
  movingRect.x = World.mouseX;
  movingRect.y = World.mouseY;

  if (movingRect.x - fixedRect.x < fixedRect.width/2 + movingRect.width/2
      && fixedRect.x - movingRect.x < fixedRect.width/2 + movingRect.width/2
      && movingRect.y - fixedRect.y < fixedRect.height/2 + movingRect.height/2
      && fixedRect.y - movingRect.y < fixedRect.height/2 + movingRect.height/2) {
    movingRect.shapeColor = "red";
    fixedRect.shapeColor = "red";
  }
  else {
    movingRect.shapeColor = "green";
    fixedRect.shapeColor = "green";
  }
  drawSprites();
}
```

2. Add a function called isTouching and move the block of if condition code inside isTouching() function.

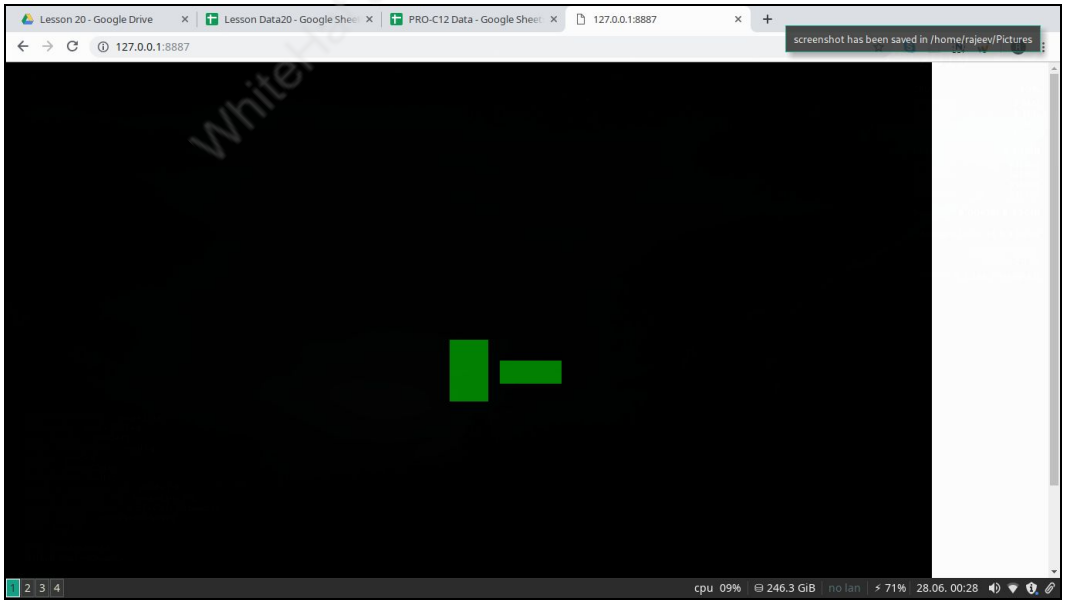
```
JS sketch.js ▸ isTouching
 9    movingRect.shapeColor = "green";
10
11  }
12
13  function draw() {
14    background(0,0,0);
15    movingRect.x = World.mouseX;
16    movingRect.y = World.mouseY;
17
18    if (movingRect.x - fixedRect.x < fixedRect.width/2 + movingRect.width/2
19        && fixedRect.x - movingRect.x < fixedRect.width/2 + movingRect.width/2
20        && movingRect.y - fixedRect.y < fixedRect.height/2 + movingRect.height/2
21        && fixedRect.y - movingRect.y < fixedRect.height/2 + movingRect.height/2) {
22      movingRect.shapeColor = "red";
23      fixedRect.shapeColor = "red";
24    }
25    else {
26      movingRect.shapeColor = "green";
27      fixedRect.shapeColor = "green";
28    }
29    drawSprites();
30  }
31
32  function isTouching(){
33
34  }
```

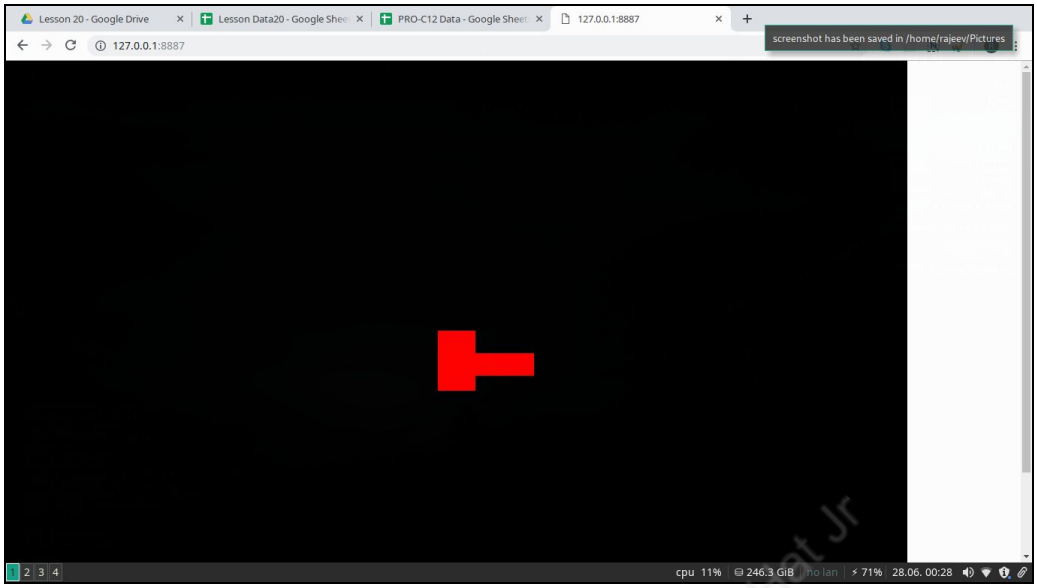
3. Place the code from line 18 to 28 inside **isTouching()** function— call the isTouching function.

```
1   var fixedRect, movingRect;
2
3   function setup() {
4     createCanvas(1200,800);
5     fixedRect = createSprite(600, 400, 50, 80);
6     fixedRect.shapeColor = "green";
7
8     movingRect = createSprite(800, 400,80,30);
9     movingRect.shapeColor = "green";
10
11  }
12
13  function draw() {
14    background(0,0,0);
15    movingRect.x = World.mouseX;
16    movingRect.y = World.mouseY;
17
18    isTouching();
19    drawSprites();
20  }
21
22  function isTouching(){
23    if (movingRect.x - fixedRect.x < fixedRect.width/2 + movingRect.width/2
24      && fixedRect.x - movingRect.x < fixedRect.width/2 + movingRect.width/2
25      && movingRect.y - fixedRect.y < fixedRect.height/2 + movingRect.height/2
26      && fixedRect.y - movingRect.y < fixedRect.height/2 + movingRect.height/2) {
27      movingRect.shapeColor = "red";
28      fixedRect.shapeColor = "red";
29    }
30    else {
31      movingRect.shapeColor = "green";
32      fixedRect.shapeColor = "green";
33    }
34  }
```

4. Modify the code for the function **isTouching()** so that it tells "true" if the two rectangles are touching and "false" if the two rectangles are not touching.

```
function draw() {
  background(0,0,0);
  movingRect.x = World.mouseX;
  movingRect.y = World.mouseY;
if(isTouching()){
  movingRect.shapeColor = "red";
    fixedRect.shapeColor = "red";
}
else
{ movingRect.shapeColor = "green";
    fixedRect.shapeColor = "green";}

  drawSprites();
}
function isTouching()
{
    if (movingRect.x - fixedRect.x < fixedRect.width/2 + movingRect.width/2
      && fixedRect.x - movingRect.x < fixedRect.width/2 + movingRect.width/2
      && movingRect.y - fixedRect.y < fixedRect.height/2 + movingRect.height/2
      && fixedRect.y - movingRect.y < fixedRect.height/2 + movingRect.height/2) {
   return true;
  }
  else {
    return false;

  }
}
```





5. Make the rectangles turn to blue instead of red when the two rectangles collide.

6. Create some more game objects (sprites).

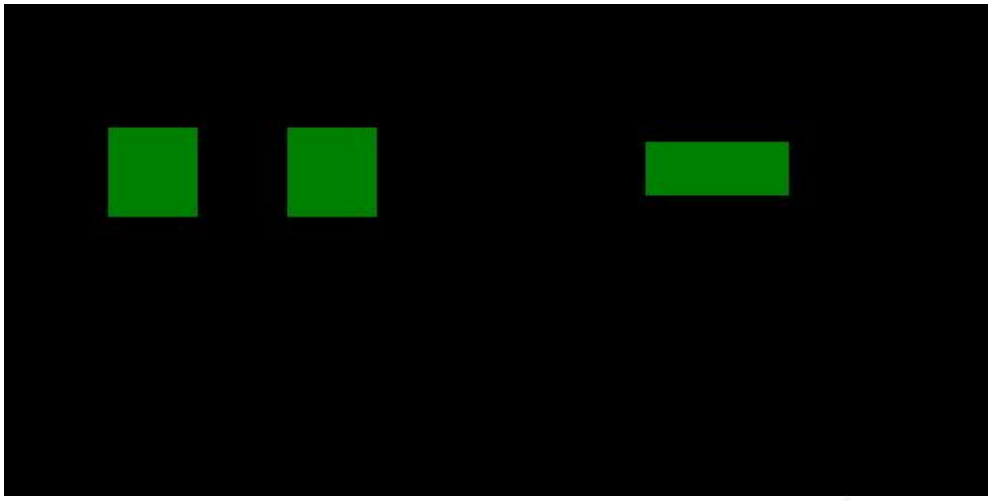
```
function setup() {
  createCanvas(1200,800);
  fixedRect = createSprite(100, 100, 50, 80);
  fixedRect.shapeColor = "green";
  fixedRect.debug = true;
  fixedRect1= createSprite(200, 100, 50, 80);
  fixedRect1.shapeColor = "green";

  movingRect = createSprite(400,200,80,30);
  movingRect.shapeColor = "green";
  movingRect.debug = true;
}

function draw() {
  background(0,0,0);
  movingRect.x = World.mouseX;
  movingRect.y = World.mouseY;
if(isTouching(movingRect,fixedRect)){
  movingRect.shapeColor = "red";
    fixedRect.shapeColor = "red";
}
else
{ movingRect.shapeColor = "green";
    fixedRect.shapeColor = "green";}

  drawSprites();
}
```

7. Change the function definition to make it accept arguments.

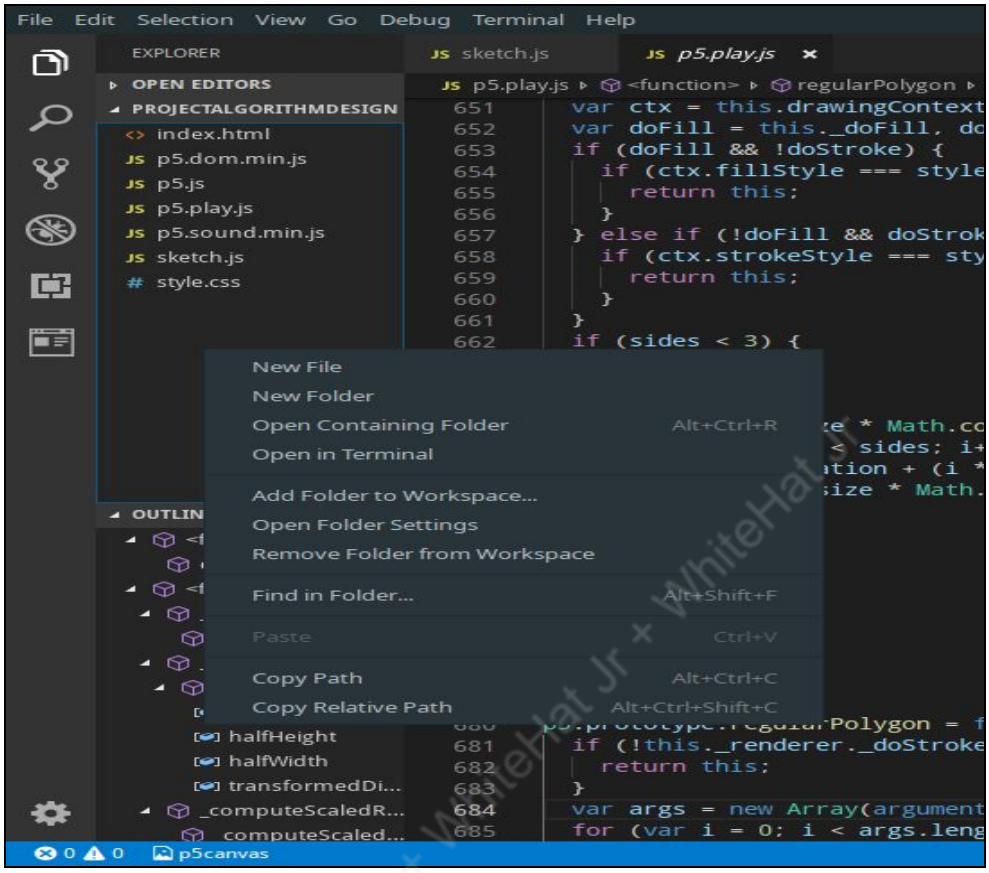
```
else
{ movingRect.shapeColor = "green";
    fixedRect.shapeColor = "green";}

  drawSprites();
}
function isTouching(movingRect,fixedRect)
{
    if (movingRect.x - fixedRect.x < fixedRect.width/2 + movingRect.width/2
      && fixedRect.x - movingRect.x < fixedRect.width/2 + movingRect.width/2
      && movingRect.y - fixedRect.y < fixedRect.height/2 + movingRect.height/2
      && fixedRect.y - movingRect.y < fixedRect.height/2 + movingRect.height/2) {
   return true;
  }
  else {
    return false;

  }
```

8. Modify the code to check collisions between movingRect and other rectangles.

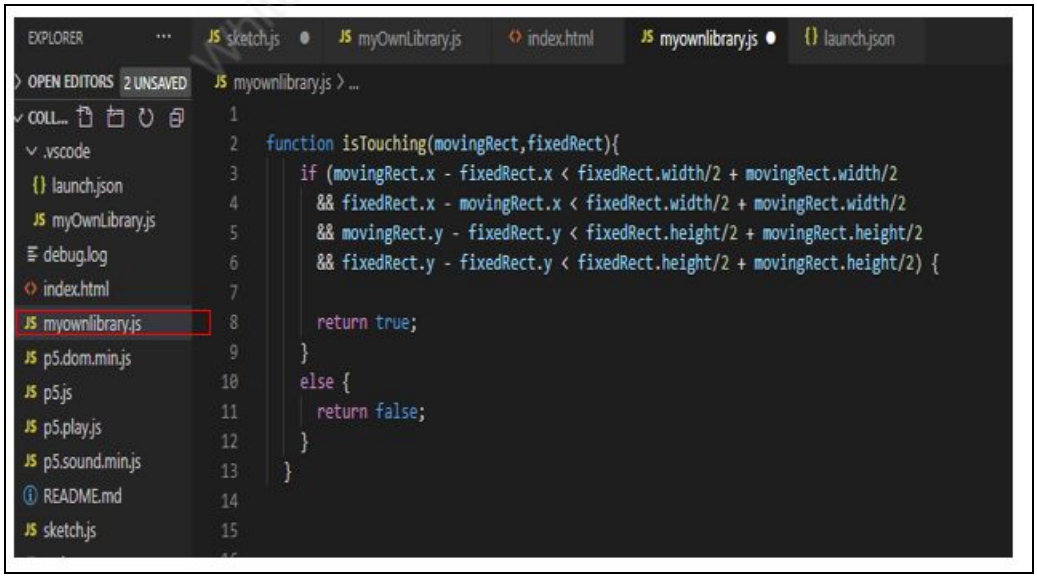
```
function draw() {
  background(0,0,0);
  movingRect.x = World.mouseX;
  movingRect.y = World.mouseY;

  if(isTouching(movingRect, fixedRect)){
    movingRect.shapeColor = "blue";
    fixedRect.shapeColor = "blue";
  }
  else if(isTouching(movingRect, fixedRect1)){
    movingRect.shapeColor = "blue";
    fixedRect1.shapeColor = "blue";
  }
  else {
    movingRect.shapeColor = "green";
    fixedRect1.shapeColor = "green";
    fixedRect.shapeColor = "green"
  }
```



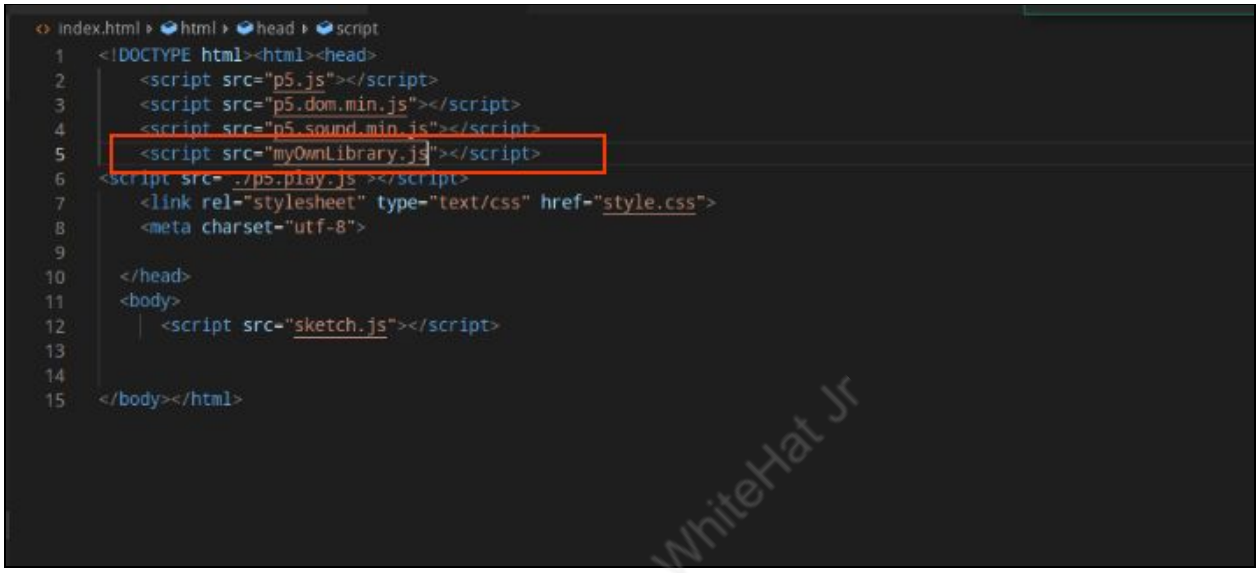
9. Create a file called **myOwnLibrary.js**.



10. Copy the **isTouching()** function created inside myOwnLibrary.js.



11. Include the myOwnLibrary.js in your index.html file.



What's next?

We will get started on creating the Angry Birds game.

Extend your knowledge:

1. Go through the following link to learn more about functions:
   https://www.w3schools.com/js/js_function_definition.asp