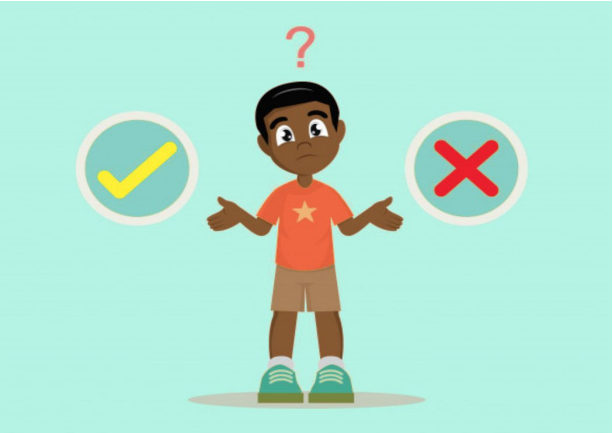
Writing functions which can take arguments

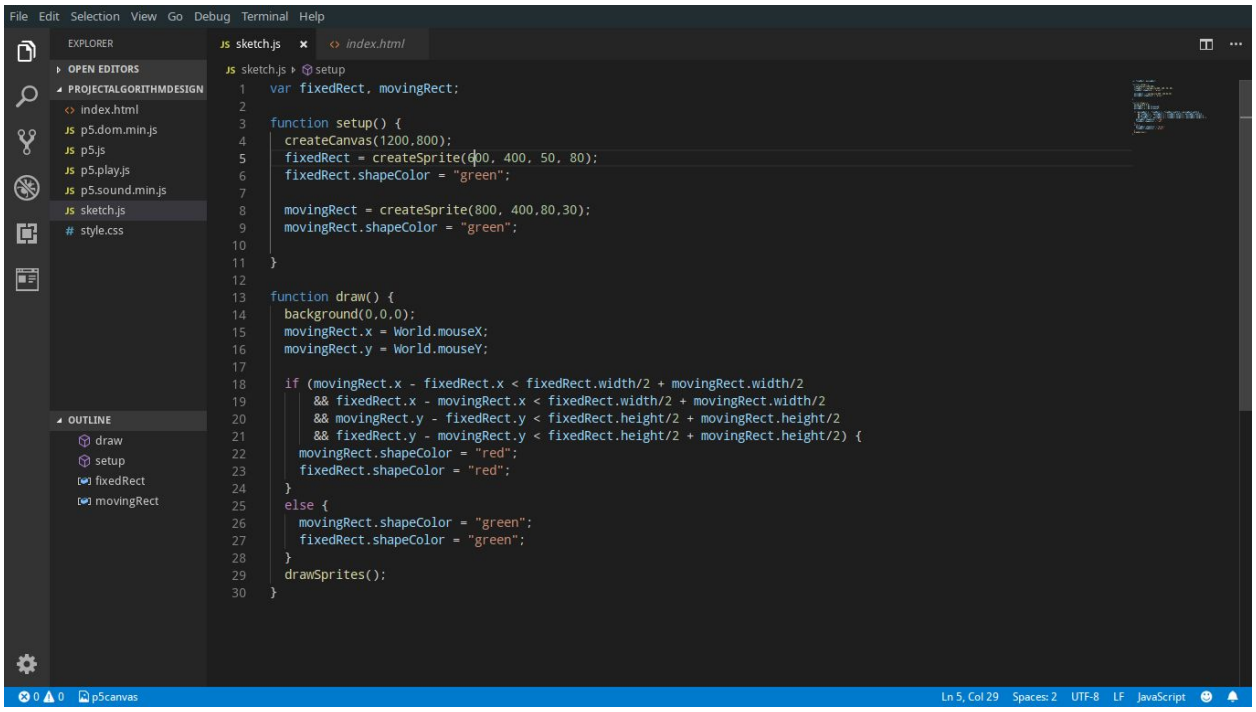


What we did:

- Learn "true" and "false" as the two boolean values
- Write a function which can accept arguments, return values and can be re-used for the different game objects.
- Create a little code library and use it within the code.

How we did it:

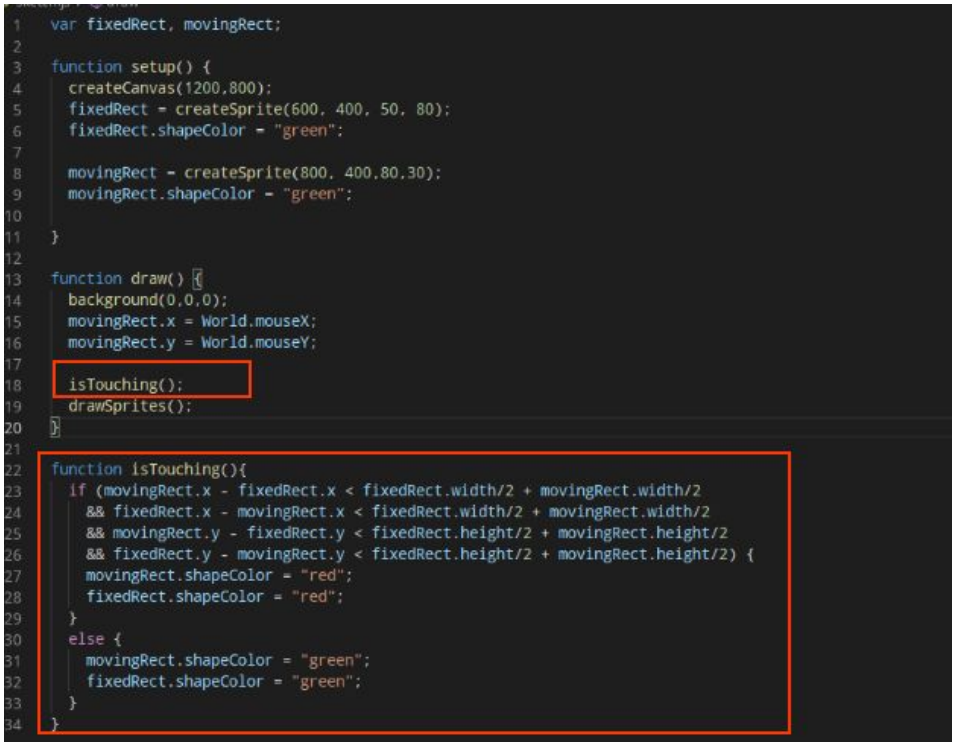
Step 1: We have to write a big series of if-else condition inside the code— code can detect collision between fixedRect and movingRect



Step 2: Write a function called isTouching. Modify the code to create a function called isTouching()

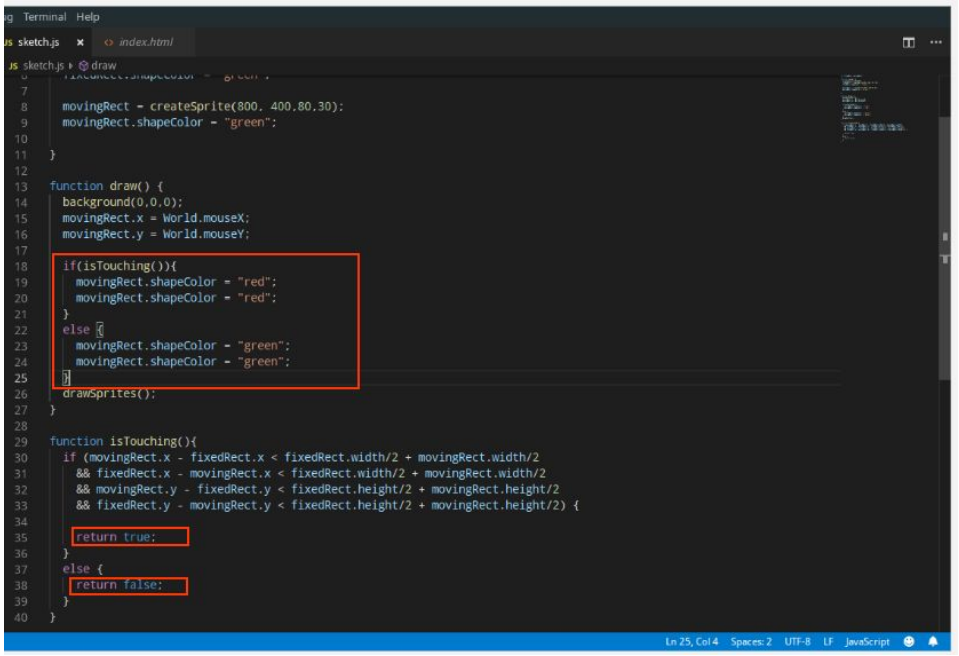
```
sketch.js ▸ isTouching
    movingRect.shapeColor = "green";

  }

  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();
  }

  function isTouching(){

  }
```

Step 3: Place our code from line 18 to 28 inside isTouching() function— call the isTouching function

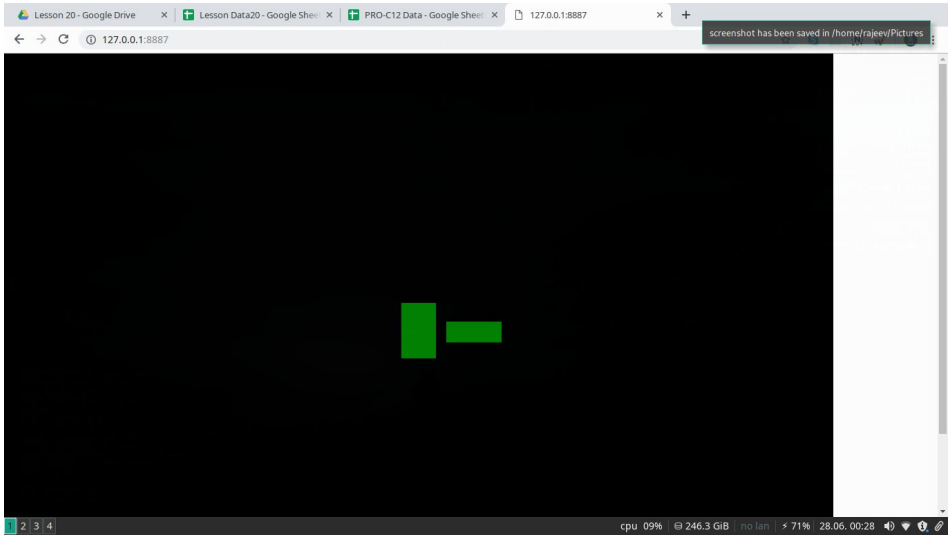


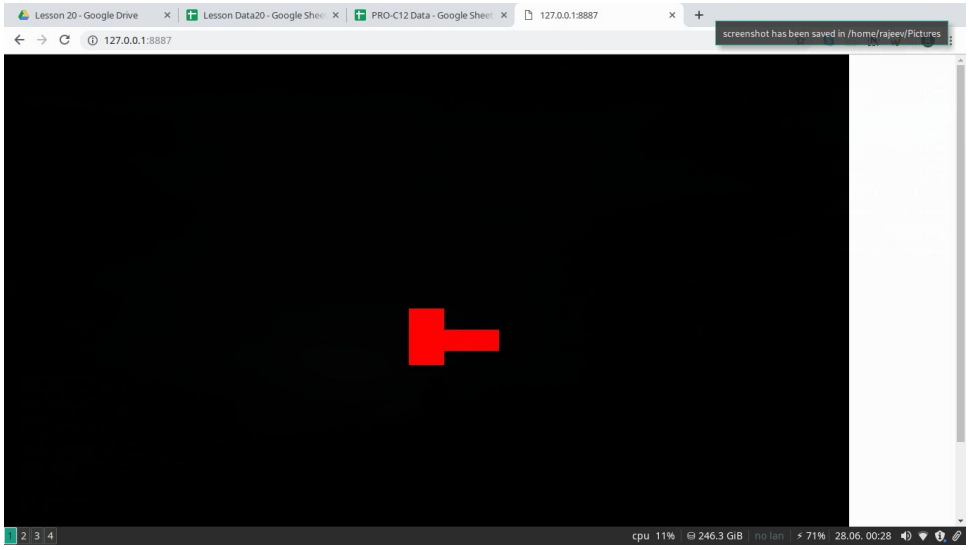
```
var fixedRect, movingRect;

function setup() {
  createCanvas(1200,800);
  fixedRect = createSprite(600, 400, 50, 80);
  fixedRect.shapeColor = "green";

  movingRect = createSprite(800, 400,80,30);
  movingRect.shapeColor = "green";

}

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

  isTouching();
  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) {
    movingRect.shapeColor = "red";
    fixedRect.shapeColor = "red";
  }
  else {
    movingRect.shapeColor = "green";
    fixedRect.shapeColor = "green";
  }
}
```

Step 4: Modify our code for the function isTouching() so that it tells "yes" if the two rectangles are touching and "no" if the two rectangles are not touching. In computer language, "yes" and "no" are written as true and false.

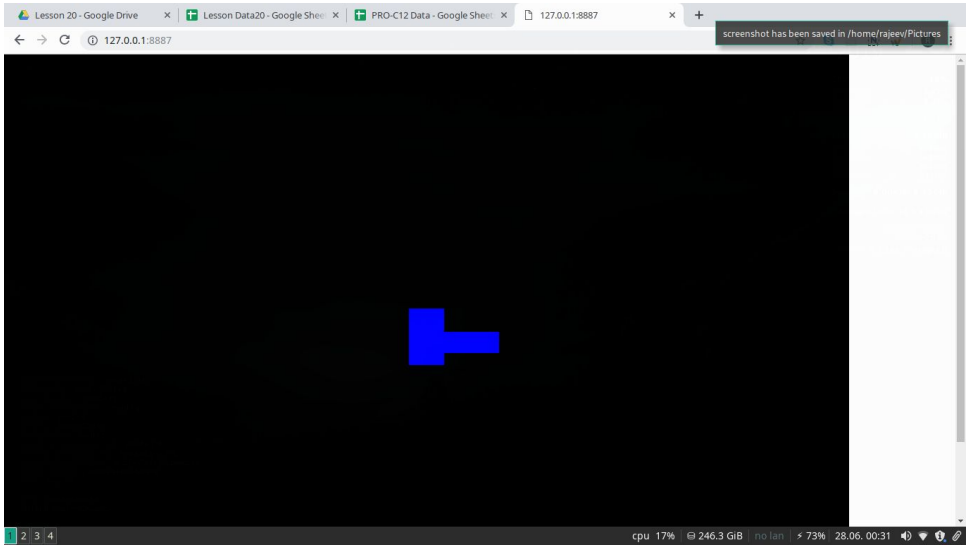


```
  movingRect = createSprite(800, 400,80,30);
  movingRect.shapeColor = "green";

}

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

  if(isTouching()){
    movingRect.shapeColor = "red";
    movingRect.shapeColor = "red";
  }
  else {
    movingRect.shapeColor = "green";
    movingRect.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;
  }
}
```





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



Step 6: Create some more game objects (sprites)

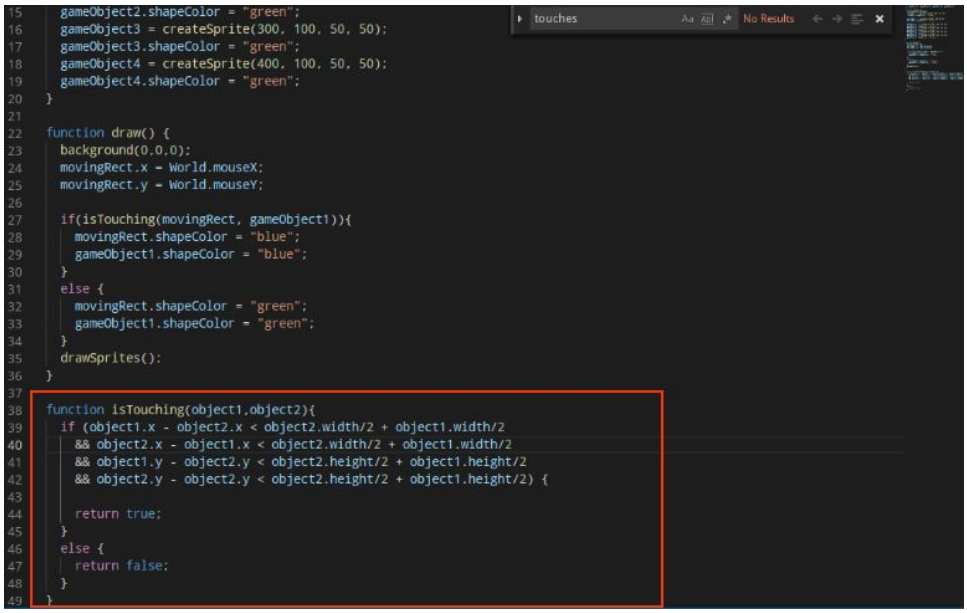
```
var fixedRect, movingRect;
var gameObject1, gameObject2, gameObject3, gameObject4;

function setup() {
  createCanvas(1200,800);
  fixedRect = createSprite(600, 400, 50, 80);
  fixedRect.shapeColor = "green";

  movingRect = createSprite(800, 400,80,30);
  movingRect.shapeColor = "green";

  gameObject1 = createSprite(100, 100, 50, 50);
  gameObject1.shapeColor = "green";
  gameObject2 = createSprite(200, 100, 50, 50);
  gameObject2.shapeColor = "green";
  gameObject3 = createSprite(300, 100, 50, 50);
  gameObject3.shapeColor = "green";
  gameObject4 = createSprite(400, 100, 50, 50);
  gameObject4.shapeColor = "green";
}

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

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

Step 7: Change our function definition to make it accept arguments.

```
  gameObject3 = createSprite(300, 100, 50, 50);
  gameObject3.shapeColor = "green";
  gameObject4 = createSprite(400, 100, 50, 50);
  gameObject4.shapeColor = "green";
}

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

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

function isTouching(object1, object2){
  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;
  }
}
```

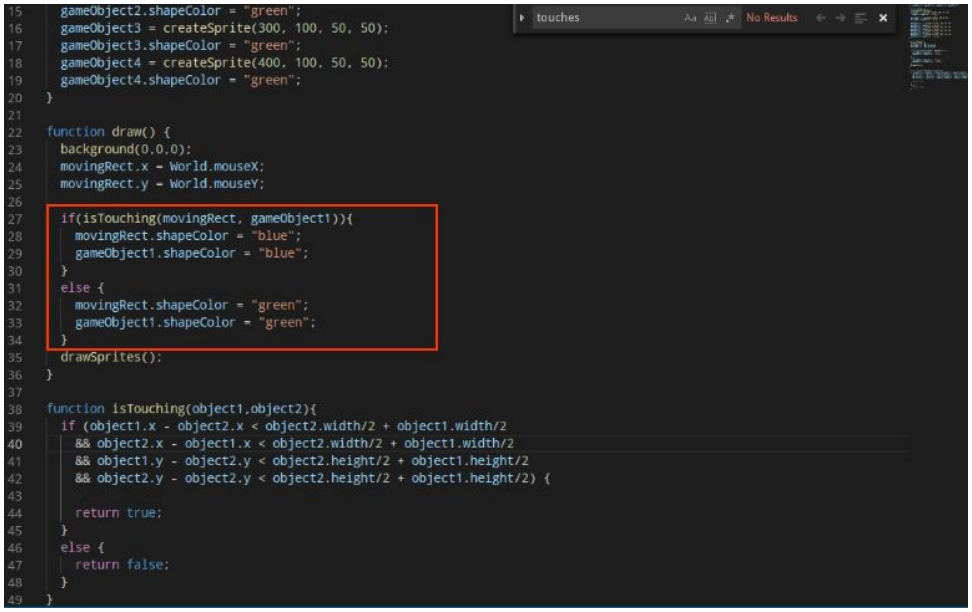
Step 8:

Step 9: Modify the function isTouching() to change movingRect and fixedRect to object1 and object2



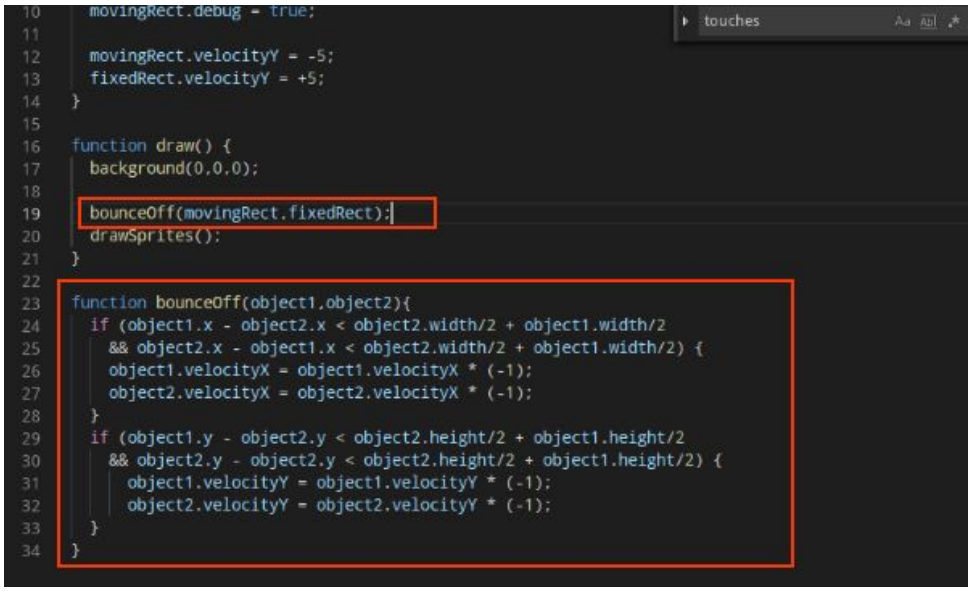
```
  gameObject2.shapeColor = "green";
  gameObject3 = createSprite(300, 100, 50, 50);
  gameObject3.shapeColor = "green";
  gameObject4 = createSprite(400, 100, 50, 50);
  gameObject4.shapeColor = "green";
}

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

  if(isTouching(movingRect, gameObject1)){
    movingRect.shapeColor = "blue";
    gameObject1.shapeColor = "blue";
  }
  else {
    movingRect.shapeColor = "green";
    gameObject1.shapeColor = "green";
  }
  drawSprites();
}

function isTouching(object1,object2){
  if (object1.x - object2.x < object2.width/2 + object1.width/2
    && object2.x - object1.x < object2.width/2 + object1.width/2
    && object1.y - object2.y < object2.height/2 + object1.height/2
    && object2.y - object2.y < object2.height/2 + object1.height/2) {

    return true;
  }
  else {
    return false;
  }
}
```

Step 10: Modify the code to check collisions between movingRect and other gameObjects

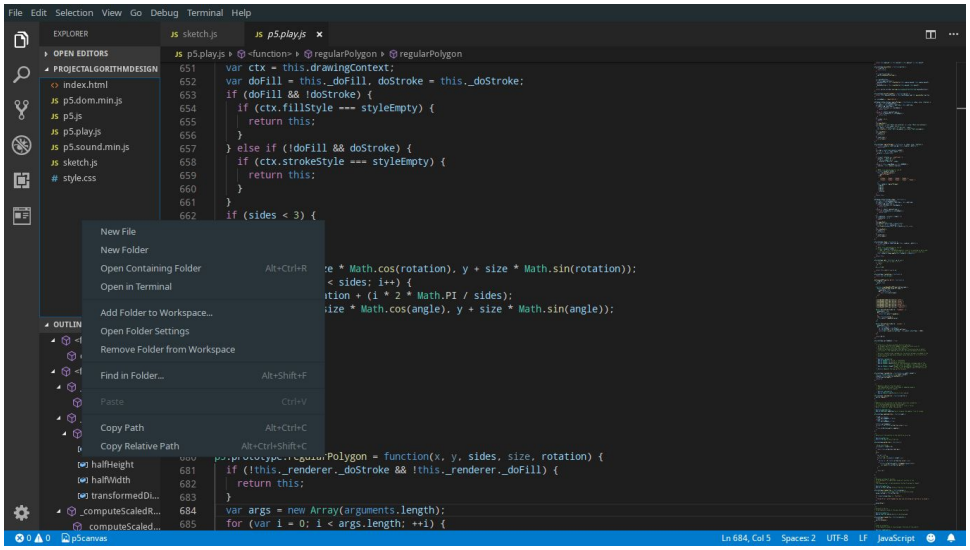


```
  gameObject2.shapeColor = "green";
  gameObject3 = createSprite(300, 100, 50, 50);
  gameObject3.shapeColor = "green";
  gameObject4 = createSprite(400, 100, 50, 50);
  gameObject4.shapeColor = "green";
}

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

  if(isTouching(movingRect, gameObject1)){
    movingRect.shapeColor = "blue";
    gameObject1.shapeColor = "blue";
  }
  else {
    movingRect.shapeColor = "green";
    gameObject1.shapeColor = "green";
  }
  drawSprites();
}

function isTouching(object1,object2){
  if (object1.x - object2.x < object2.width/2 + object1.width/2
    && object2.x - object1.x < object2.width/2 + object1.width/2
    && object1.y - object2.y < object2.height/2 + object1.height/2
    && object2.y - object2.y < object2.height/2 + object1.height/2) {

    return true;
  }
  else {
    return false;
  }
}
```

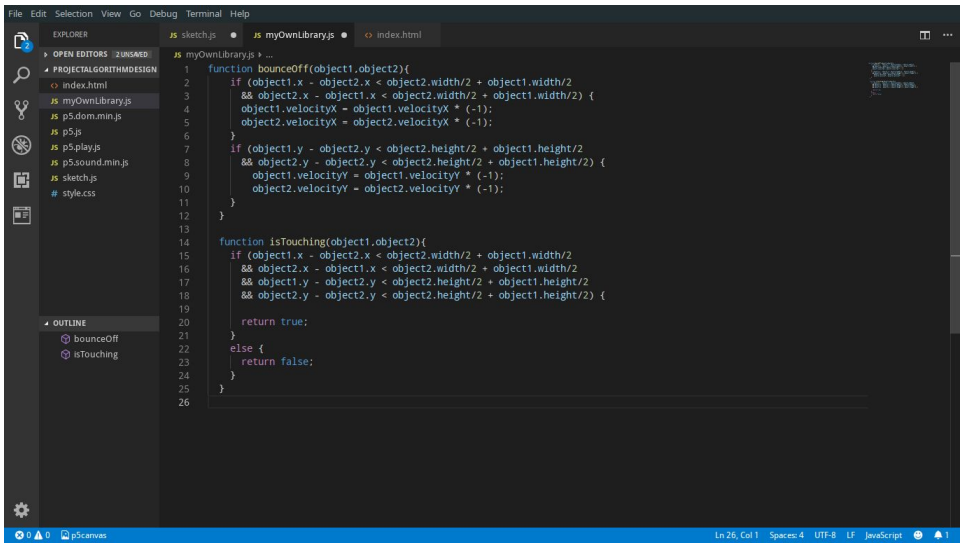
Step 11: Write the bounceOff function and test it



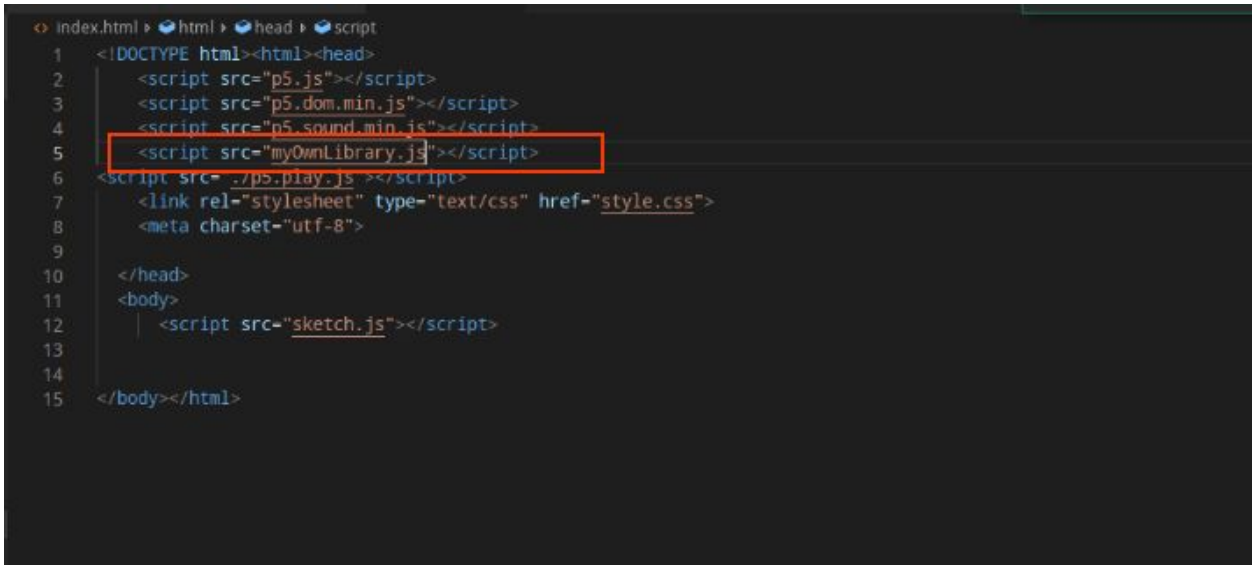
Step 12: Create a file called myOwnLibrary.js



Step 13: Copy the two functions— bounceOff and isTouching created inside myOwnLibrary.js



Step 14: Include the myOwnLibrary.js in your index.html file. This file can now be included into any project and use the two functions - bounceOff and isTouching - in your code without writing any code!



What's next?: Get started on the Angry Birds Project